# GENERAL CATALOG

1973 - 1974

# WORCESTER STATE COLLEGE

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WORCESTER, MASS. 01602

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# PROGRAMS OF STUDY

WORCESTER STATE COLLEGE OFFERS:

BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

Major Programs Include the Following:

ADMINISTRATIVE STUDIES
BIOLOGY
CHEMISTRY
COMMUNICATION DISORDERS
ECONOMICS
ENGLISH
FRENCH
GEOGRAPHY
HISTORY
MATHEMATICS
MEDIA*
NATURAL SCIENCE
NURSING*
PHYSICS
PSYCHOLOGY
SOCIOLOGY
SPANISH

Minor Programs Include the Following:

ADMINISTRATIVE STUDIES
ART
BIOLOGY
CHEMISTRY
COMMUNICATION DISORDERS
COMPUTER SCIENCES*
DRAMATICS (See Theatre)
ECONOMICS
ENGLISH
FRENCH
GEOGRAPHY
GERMAN
HEALTH EDUCATION*
LIBRARY/MEDIA
MATHEMATICS
MUSIC
NATURAL SCIENCE
PHILOSOPHY*
PHYSICAL EDUCATION
PHYSICS
POLITICAL SCIENCE
PSYCHOLOGY
SECONDARY EDUCATION
SOCIOLOGY
SPANISH
THEATRE
URBAN STUDIES

* *Pending Final Approval*

## BACHELOR OF SCIENCE IN EDUCATION

Offering Programs in Kindergarten-Primary, Intermediate Grades and Early Childhood Education with Concentrations in:

ADMINISTRATIVE STUDIES
ART
BIOLOGY
CHEMISTRY
COMMUNICATION DISORDERS
DRAMATICS (See Theatre)
ENGLISH
FRENCH
GEOGRAPHY
GERMAN
HEALTH AND PHYSICAL EDUCATION
HISTORY
MEDIA
MATHEMATICS
MUSIC
NATURAL SCIENCE
PSYCHOLOGY
SCHOOL LIBRARY SCIENCE
SOCIOLOGY
SPANISH
THEATRE
URBAN STUDIES

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## AREAS OF PROFESSIONAL SPECIALIZATION

ACTUARIAL SCIENCES (Math Dept.)
AMERICAN STUDIES (History Dept.)
ENVIRONMENTAL STUDIES (Science Dept.)
MARINE SCIENCES (Mass. State College Consortium)
NURSING EDUCATION PROGRAM (Diploma Schools)
PRE-DENTAL
Professional Preparation for ENGINEERING FIELDS (Math.Dept.)
PRE-LEGAL
PRE-MEDICAL
URBAN STUDIES

# ACADEMIC POLICIES

## GRADING AND QUALITY POINT SYSTEM

The marking system in effect at WSC consists of the following:

1. Letter grades A, A-, B+, B, B-, C+, C, C-, D+, D, D-, E, Withdraw, Withdraw Pass, Withdraw Fail, Pass, and Fail are used.

2. Each student's marks are evaluated each semester on a quality point basis. A is equivalent to 4.0, A- to 3.7, B+ to 3.3, B to 3.0, B- to 2.7, C+ to 2.3, C to 2.0, C- to 1.7, D+ to 1.3, D to 1.0, D- to 0.7, and E to 0.0. W, WP, WF, P, and F are not included in the computation of the quality point average.

   The number of quality points a student receives in a course is determined by multiplying the total number of semester hours by the corresponding number of quality points. For example, the student receives an "A" in English which is a 3 credit course, therefore 4 x 3 = 12 quality points.

   Grades are never removed from a student's permanent file. Courses that the student has failed may be re-taken, but both marks will be included in the quality point average calculation.

3. Freshman with a quality point average of less than 1.0 at the end of their first semester will be dropped from the college rolls. To proceed from Freshman to Sophomore year, the student must achieve a quality point average of 1.50. To proceed from the Sophomore year to the Junior year, the student must have a quality point average of 1.75 for his Sophomore year or a 1.75 cumulative average. To proceed from the Junior to Senior year, the student must have a quality point average of 2.0 for his Junior year or a cumulative average of 2.0.

4. Students wishing to take courses outside the college's regular undergraduate program must receive the prior written approval of the Director of Academic Advising.

5. Incomplete (INC): An incomplete grade is an extension of time granted by the individual faculty member to a student to complete the requirements of a course in which he has already completed 80% of the work,but has been unable to finish the course requirements because of valid reasons.

   Plans for the removal of the incomplete should be clearly understood. All incompletes must be resolved within eight weeks after the beginning of the next semester. After this time, the incomplete will automatically become a grade of E, and is so recorded on the student's permanent record.

## WSC PROBATION SYSTEM

### Academic Standards

In order to be considered in good academic standing, students at WSC are expected to comply with the academic policies contained in the college

catalog. Categories of jeopardized academic status are as follows:

Warning — A student will receive academic warning if his academic performance in a class at the end of the first eight weeks of the semester is equivalent to D or failure. (The Registrar will note such deficiencies and mail the warnings.)

Probation — If a student fails to meet the requisite quality point average for his class at the completion of each academic year he has to either withdraw from the college or be placed on probation. The same applies to a student who fails to achieve a quality point average of 1.0 at the end of his first semester in college. Probation may not exceed one semester. If at the end of one semester, the probationary student fails to meet the required cumulative quality point average he is withdrawn from the college. It is recommended that, while on probation, a student take no more than 12 credits.

## Guidelines for Probation

For the Freshman who fails to achieve 1.0 at the end of the first semester, it is recommended that he be placed on probation if he has achieved 0.70 or higher, or withdraw for one semester with an average of 0.69 or less. The student may appeal this decision to the Admissions Committee. If the freshman student with an average of 0.70 takes 12 credits and receives a grade of C in each of these courses, he will have a 1.50 at the end of his Freshman year.

The following guidelines are for use at the end of the Freshman, Sophomore and Junior years:

Freshman — 1.25 to 1.49 the student shall be placed on probation; 1.24 or less the student shall be withdrawn and may appeal to the Admissions Committee.

Sophomore —1.60 to 1.74 the student shall be placed on probation; 1.59 or less the student shall be withdrawn and may appeal to the Admissions Committee.

Junior — 1.90 to 1.99 the student shall be placed on probation; 1.89 or less the student shall be withdrawn and may appeal to the Admissions Committee.

These recommended quality point averages are based on the presumption that the student at these recommended levels for probation can achieve good standing by getting two B's and two C's in 12 semester hours.

## Withdrawal for Academic Deficiency

A student is withdrawn from WSC who:

1. fails to meet the required cumulative or yearly quality point average as spelled out under academic policies and who falls below the probationary guidelines (bans); or,

2. who, after a semester of probation does not meet the cumulative quality point average demanded by his previous year in class.

When a student is academically withdrawn from WSC, the Director of Academic Advising will designate the fields in which preparatory work must be completed in order for him to be readmitted.

## Readmission

A student who has been withdrawn from WSC for academic deficiencies may qualify for readmission by complying with the following plan:

1. he may complete the appropriate number of semester hours at another approved institution of higher education (with the advice of the Director of Academic Advising) and earn grades necessary to raise his cumulative quality point average to that standard or level of performance required at the time he was withdrawn from the college; or,

2. failing to meet the above readmission criterion, a person may apply to the Admissions Committee for readmission. The committee may then request any supportive data it needs to make it's decision.

## PASS/FAIL POLICY

A pass-fail system has been established wherein all full-time students will be able to select two

courses and physical education per semester on a pass-fail basis.

Pass-fail grading shall not apply to those courses used to acquire the thirty (30) hours in the student's major field.

Pass-fail grading shall not apply to those courses used to acquire the eighteen (18) hours in the student's minor field.

These courses must be outside the elementary education major's field of concentration until he has acquired fifteen (15) hours in this area.

Students must inform the Registrar one month prior to the last scheduled day of class if they wish to take a course Pass-fail. The instructor shall grade the student A, A-, B+, B, B- C+, C, C-, D+, D, D-, or E and the Registrar will convert the letter grade to a "P" or "F". If a student decides to change his choice of the Pass-fail course then he must notify the Registrar within one month prior to the last scheduled class.

## WITHDRAWAL POLICY

### Withdrawal from the College*

1. Permanent – W, WP, WF are the grades used at the time of withdrawal. No computation in quality point averages will be recorded on the student's permanent record. Should a person decide to return to WSC after having permanently withdrawn, the individual would have to file for admittance as a new student.

2. Leave of Absence – To preserve his position in the college, the student requesting a leave of absence must return on an agreed upon date. An extension of no more than one semester may be granted. Failure to return on the agreed upon date will necessitate filing for admission as a new student if the student desires to return. W, WP, WF are the grades used at the time of withdrawal. No computation in quality point averages will be recorded on the student's permanent record.

3. Extenuating Circumstances – Under certain circumstances and at the discretion of the Dean of Students, a student may be granted a temporary leave of absence in which case the Instructor will be informed not to submit grades for the student and the student's name will be deleted from the class list.

### Changing and Withdrawing from Individual Courses*

1. Students may change courses up to three (3) weeks after the first day of classes. The required forms are available at the Registrar's Office. The procedure to change, add or drop a course is as follows:

   a) First obtain the signature of the Professor of the section the student wishes to add;

   b) Obtain the signature of the Professor of the section the student wishes to drop;

   c) Return the form to the Registrar's Office.

2. Students may withdraw from individual courses prior to four (4) weeks before the date of the last class. Students withdrawing from a course before the eight (8) week "D-Warnings" are issued shall receive a "W" on their record. Students withdrawing from a course after "D-Warnings" are issued shall receive a W, WP, or WF on their record. Students will receive no credit for courses which they have withdrawn, and in no case shall a W, WP, WF be used in computing a student's quality point average. To withdraw from an individual course, a student must follow the same procedure as that used to change, add or drop a course. (See this section: number 1.) In addition, the student withdrawing from a course must also obtain the signature of his Advisor.

3. It is also possible for students to be granted a "Withdrawal due to Extenuating Circumstances" from an individual course at any time. Such permission is granted by the Dean of Students.

4. Students withdrawing from all of their scheduled courses shall be considered as having withdrawn from the college. (See above section: Withdrawal from the College).

* *All withdrawals shall be filed with the Dean of Students; student Advisors shall be informed and consulted in each case; students who fail to go through established procedures will be considered as still enrolled in their courses and shall receive a grade based upon the course requirements.*

# INTERNSHIPS and PROFESSIONAL EXPERIENCES AT WSC

Many departments at WSC offer students an opportunity to enroll in internships and other professional experiences relevant to their program of studies. Internships provide advanced students with supervised practical experience on a regular basis and for an extended period of time. The department offering the internship screens the applicants in order to select candidates for the internships available.

A student interning full time (5 full days per week) earns the same number of credits as a student carrying a full course load (e.g. 15-18 credits). A student interning on a part time basis can earn *at least* one academic credit for every thirty hours of internship.

The student's Advisor should file a description of the specific internships (location, responsibilities, duration) and credit assigned with the Department Chairman and the Director of Professional Experiences, Mr. Richard Sine (Room A307). Supervision of students is provided by the department offering the internship. However, the Director of Professional Experiences should be consulted. It is the responsibility of the intern's college supervisor to evaluate and grade the intern's performance. Attendance during an internship is mandatory. A student may be removed from an internship if the Advisor, the Chairman of the Department, and the Director of Professional Experiences deem it to be in the best interest of all concerned (student, institution, and college).

The Office of Professional Experiences is the clearinghouse for all off-campus placement involving academic semester hour credit. The Director has the responsibility of coordinating all internships, facilitating placements, supervision, and evaluation.

# BACHELOR OF ARTS,

# BACHELOR OF SCIENCE

## GENERAL REQUIREMENTS

### Credit Hours

Every candidate for the Bachelor of Arts or Bachelor of Science degree must complete 128 semester hours of credit before graduation.

### Residence

The usual period of residence and study required of a student who enters as a Freshman if four years. Transfers must be in residence and must successfully complete one year at WSC as a full-time student (minimum of 24 credit hours) in order to graduate from WSC. Transfer credit within the major must be approved by the major department. The major department will determine course and credit requirements and students must meet the degree requirements of the class with which they plan to graduate. Transfer credit courses from accredited institutions must have been completed within the previous ten years (exception to this rule can only be made after individual departmental evaluation).

### Graduation Grade

A grade point average of 2.0 or better must be attained in courses in the major field. An average of 2.0 must be attained for all courses to quality for graduation.

### Course Load

1. **Minimum** — A full time student is required to register for courses totaling a minimum of 12 hours per semester.
2. **Maximum** — A student may elect up to 18 semester hours without special permission. Official permission is required from the student's Advisor to elect more than 18 semester hours per semester.

## CURRICULAR REQUIREMENTS

The particular courses in which credits may be earned are selected by the student and his Advisor. Courses should be selected to meet the student's needs within a general framework that is designed to insure a certain degree of breadth and depth in his intellectual development. The student will have the counsel of his faculty Advisor during and after the pre-registration period and throughout his college career. The required course of study combines General Foundation, Distribution, Major-Minor program, and Elective Courses.

### General Foundation

The following courses are to be taken by all students beginning in the Freshman year and continuing until the requirements are completed (Section 3 excepted):

1. **English Composition** – Required of all Freshman unless exemption is granted by the Department of English

2. **Physical Education** – Each student is required to select and complete two semester hours in accredited courses offered by the Health and Physical Education Department.

3. **Federal and State Constitutions** – Prior to graduation each student shall have completed a course in which the United States and Commonwealth of Massachusetts constitutions are studies (Chapter 73, Section 2A-General Laws, Commonwealth of Massachusetts as amended). *See Po 100 course description.*

## Distribution

The purpose of the requirements in distribution is to provide the student with a general knowledge of the content and methods of the various fields included in a liberal education. Students may elect courses to meet these requirements in any year of the undergraduate program. The requirements must be fulfilled by a minimum of six credit hours in each of the four groups listed below. Courses taken to meet General Foundation requirements do not apply. (Courses included in the student's major or minor, however, may be used to meet distribution requirements in the groups to which they apply.

Group I. Humanities

Literature (read either in English or other languages)
Philosophy
History
Foreign Languages
Media

Group II. Social Sciences

Economics
Education
Geography
Political Science
Psychology
Sociology

Group III. Arts

Art
Drama
Music

Group IV. Natural Sciences and Mathematics

Astronomy
Biology
Chemistry
Computer Sciences
Geology
Mathematics
Physics
Physical Science
Physical Geography

## Major-Minor Program

The student is given the opportunity to study one subject, the major, and a second subject, the minor, in an increasingly effective and scholarly way. The object of this concentration requirement is to provide the student with a project of integrated study, leading him to the satisfaction of having made progress in a well-developed field of learning.

The student chooses his major field of intellectual interest in one of the academic disciplines offered. The chairman of that department will assign a faculty member to assist and advise the student in designing a comprehensive program of studies. The program must include:

1. At least 30 credit hours in the major field. The major may not exceed 48 hours in a single department except by permission of that department. The major shall be outlined and certified by the major departments.

2. A minimum of 18 credit hours in a minor subject area, approved by the major Advisor. The minor may not exceed 24 credit hours except by official permission.

## Elective Courses

Other courses to complete the 128 hours for graduation may be selected without restriction. The Student, however, should be guided in his

choice by the purpose of promoting breadth as well as depth in his intellectual development. The purpose of elective courses is to permit the further pursuit of advanced work and to encourage exploration in diverse fields of knowledge.

## BACCALAUREATE DEGREE ELECTION — B.A. / B.S.

Students may receive either a Bachelor of Arts or Bachelor of Science while majoring in any subject, with the exception of Elementary Education.

Each department will specify the requirements in its major and ancillary fields. Departments are free to structure requirements to meet either or both degree programs provided such requirements are consistant with college-wide requirements for graduation.

### Determination of Degree

The two areas of concentration under the baccalaureate degree programs are Humanities and Sciences. The subject areas normally associated with the two designations are:

HUMANITIES

Art
Drama
English
Foreign Languages
History
Media
Music

SCIENCES

Biology
Chemistry
Computer Sciences
Economics
Education
Geography
Mathematics
Natural Science
Physical Education
Political Science
Psychology
Sociology
Communication Disorders

Designation of degree shall be made by totaling elective credits* in the Humanities and Sciences concentrations. If a majority of elective credits were awarded in the Humanities, the student will be granted a Bachelor of Arts Degree; if a majority of the elective credits were awarded in the Sciences, the student will be granted a Bachelor of Science Degree.

The curriculum requirements and degree designation became effective June, 1972, and shall accommodate all students presently enrolled. The student entered under previous degree structures who feels unjustly treated by a change in degree title may apply to the Academic Dean for a variance.

**ELECTIVE CREDITS are defined as any credits above those required for completion of major (major and ancillary courses), and as listed under General Foundations.*

# BACHELOR OF SCIENCE IN EDUCATION

## GENERAL REQUIREMENTS

### Credit Hours

Every Bachelor of Science degree in Education (Elementary) candidate must earn 128 semester hours of credit before graduation.

### Residence

Normally, at least 30 credit hours of the total 128 must be taken at WSC. The normal period of residence and study required of a student who enters as a Freshman is four years. All students must be registered at WSC for the Senior year. Credits for student teaching must be earned at this college.

### Graduation Grade

A quality point average of 2.3 or better must be attained in Education courses, and an overall average of 2.0 must be earned in order to graduate.

### Course Load

Minimum – A full-time student is required to register for courses totaling a minimum of 12 semester hours of credit per semester. Most students carry a 15-semester-hour load.

Maximum – A student may take up to 18-semester hours of credit per semester without special permission. Beyond this, official permission is required from the Associate Academic Dean of Education.

## CURRICULAR REQUIREMENTS

### General Foundation Requirements

The following courses are to be taken by all students beginning in the Freshman year and continuing until requirements are completed.

1. English Composition – Required of all Freshmen unless exemption is granted by the Department of English.
2. Physical Education – Each student is required to select and complete two semester hours in accredited courses offered by the Health and Physical Education Department.
3. First Aid – This requirement may be taken at the college or Red Cross.
4. Federal and State Constitutions – Prior to graduation each student shall have completed a course in which the United

States and Commonwealth of Massachusetts constitutions are studied. A student completing American History satisfactorily will not be required to take the course Federal and State Constitutions (Po 100).

## BACCALAUREATE DISTRIBUTION REQUIREMENTS

Each student is required to complete a minimum number of semester hours in the following disciplines:

English Literature
(9 semester hours)
Speech
(2 semester hours)
Psychology
(9 semester hours)
Fine Arts (Music and Art)
(6 semester hours)
Mathematics
(6 semester hours)
Laboratory Sciences
(12 semester hours)
History
(6 semester hours)
Geography
(6 semester hours)
Sociology
(3 semester hours)
Economics
(3 semester hours)

## PROFESSIONAL EDUCATION REQUIREMENTS

Students preparing to teach in the elementary school are required to identify their area of interest (kindergarten-primary or intermediate) and complete the professional sequence listed in the four-year curriculum plan which is found in sections under Departments, Programs and Course Descriptions. Required courses are denoted by (*) in the recommended programs. A minimum of 39 semester hours must be earned in this area.

## CONCENTRATION ELECTIVE REQUIREMENTS

Every Elementary Education major must select a minimum of five elective courses totaling 15 semester hours of concentration in a content field in addition to those listed above in the Baccalaureate Distribution Requirements.

For further information regarding the major requirements for Elementary Education, please refer to *Elementary Education*, published by the Elementary Education Department, or to the Academic Advisor for Elementary Education.

## MINIMAL CURRICULAR REQUIREMENTS

Professional Educational Courses
(39 semester hours)
Baccalaureate Distribution Electives
(68 semester hours)
Area of Concentration Electives
(15 semester hours)
Undesigned Electives
(6 semester hours)

TOTAL: 128 semester hours

# DEPARTMENTS, PROGRAMS & COURSE DESCRIPTIONS


ADMINISTRATIVE STUDIES 19
ART 23
BIOLOGY 24
CHEMISTRY 28
COMMUNICATION DISORDERS 30
COMPUTER SCIENCE 32
ECONOMICS 33
EARLY CHILDHOOD EDUCATION 35
ELEMENTARY EDUCATION 36
ENGLISH 45
FOREIGN LANGUAGES 49
GEOGRAPHY & GEOLOGY 54
HEALTH & PHYSICAL EDUCATION — MEN 56
HEALTH & PHYSICAL EDUCATION— WOMEN 57
HEALTH EDUCATION 59
HISTORY & POLITICAL SCIENCE 59
AMERICAN STUDIES 61
POLITICAL SCIENCE 63
MATHEMATICS 64
ACTUARIAL PROGRAM 65
MEDIA (and Theatre) 68
MUSIC 72
NATURAL SCIENCE & PHYSICS 73
NURSING 76
PSYCHOLOGY 79
PHILOSOPHY 78
SOCIOLOGY 81

*– NOTES –*

## CATEGORIES:

All course descriptions contained in the catalog have a category number of either 1, 2, or 3. Category 1 are those courses taught every year; Category 2 are those courses taught every 2 or 3 years; while Category 3 represents areas of interest whenever there is sufficient student demand and available staff time.

## PENDING APPROVAL:

Some programs at WSC have been proposed as either major programs or minor programs. These programs have been starred noting that they are pending approval. In most cases these programs have been proposed to the Undergraduate Curriculum Committee at WSC for preliminary approval; during the next academic year these programs will be proposed for final approval. Should you have any questions concerning programs indicated as pending approval, please contact the Office of the Director of Academic Advising.

## COURSE NUMBERS:

Some departments at WSC use a course numbering system designed to facilitate the advising and preregistration of students. Where this is the case, it is so noted under the department description. In general, there is not a college wide course numbering system.

## FACULTY LISTING:

A faculty listing by department and program can be found in the last section of this publication.

# DEPARTMENT OF ADMINISTRATIVE STUDIES

The department offers a major in Administrative Studies with specialization available in the fields of Business Administration, Government Administration, and Health Administration. Capable and well-qualified administrators are needed to direct and control the organizations and institutions which form the framework of today's society. Given the need for complex organizations to achieve the tasks required, as well as the rapid changes in administrative tools and techniques, it is important that tomorrow's administrators be well-prepared for beginning their careers in administration.

The academic program is concentrated in the Junior and Senior years, with most courses taken during those years. The Junior year includes a set of eight required courses which may be considered a central core of knowledge and is used as a foundation for the Senior year. The senior year allows full flexibility for each student, with combinations of coursework and field studies in Business, Health, or Government Administration available. Field work may include an internship in a work situation for credit or an Administrative Studies project focusing on a problem area in one of the three option areas. Both internships and field studies are designed for particular student interests and capabilities.

## Administrative Studies Major Requirements

The major requires 48 hours in Administrative Studies: 3 hours at the Sophomore level, 24 hours at the Junior level, and 21 hours at the Senior level.

## Administrative Studies Minor Requirements

Students opting to minor in Administrative Studies are required to take 24 hours in the following courses: Ad 300, 301, 305, 306, 310, 315, 320, and 325.

## Transfer Students

Students transfering from other schools with Freshman-Sophomore courses in Business Administration should obtain advice from the department. In general, these lower division courses may not be counted toward the major. Therefore, satisfaction of the requirements for distribution, the major, and a minor may require transfers to take more than the college minimum of 128 hours.

## Recommended Programs of Study for the Administrative Studies Major (B.A. / B.S.)

### FRESHMAN

**Fall Semester**

| | |
|---|---|
| Ad 100 | The Administrator (elective) |
| Cs 150 | Introduction to Computer Science (Group IV) |
| Ec 100 | Principles of Economics I (Group II) |
| — | Any Group III |
| — | Elective/Minor |
| — | Physical Education |

**Spring Semester**

| | |
|---|---|
| Ad 110 | Introductory Accounting I (elective) |
| Cs 170 | Programming with COBOL |
| Ec 101 | Principles of Economics II (Group II) |
| — | Any Group III |
| — | Elective/Minor |
| — | Physical Education |

### SOPHOMORE

**Fall Semester**

| | |
|---|---|
| Ad 111 | Introductory Accounting II (elective) |
| Ma 250 | Introductory to Statistics (Group IV) |

**Spring Semester**

| | |
|---|---|
| Ad 200 | Internship Seminar * |
| Hi 111 | U.S. History (Group I) |
| — | Elective/Minor |

SOPHOMORE CONTINUED

| | | | |
|---|---|---|---|
| Me 470 | Communication Theory (Group I) | — | Elective/Minor |
| — | Elective/Minor | — | Elective/Minor |
| — | Elective/Minor | — | Elective/Minor |
| — | Physical Education | — | Physical Education |

JUNIOR**

| Fall Semester | | Spring Semester | |
|---|---|---|---|
| Ad 300 | Theory and Cases in Administration I | Ad 301 | Theory and Cases in Administration II |
| Ad 305 | Principles of Supervision | Ad 306 | Principles of Personnel Management |
| Ad 310 | Managerial Accounting and Budgeting | Ad 315 | Information Systems |
| Ad 320 | Law for the Administrator | Ad 325 | Planning, Forecasting, and Control |
| — | Elective/Minor | — | Elective/Minor |

SENIOR***

Any 21 credits from Senior level courses listed below, and any 9 elective/minor credits outside Administrative Studies. The Administrative Studies credits may be a combination of courses, working internships, and special projects.

Senior Level Courses:

| | | | |
|---|---|---|---|
| Ad 400 | Organizational Development I | Ad 450 | Health Systems in America |
| Ad 401 | Organizational Development II | Ad 451 | Internships in Health Administration |
| Ad 403 | Financial Management I | Ad 452 | Independent Study in Health Administration |
| Ad 404 | Financial Management II | Ad 453 | Selected Topics in Health Administration |
| Ad 405 | Marketing I | Ad 460 | Law for Public Administrators |
| Ad 406 | Marketing II | Ad 461 | Internships in Government Administration |
| Ad 412 | Government Budgeting Systems | Ad 462 | Independent Study in Government Administration |
| Ad 425 | Office Management | Ad 463 | Selected Topics in Government Administration |
| Ad 426 | Sales Management | Ad 471 | Internships in Business Administration |
| Ad 427 | Credit Management | Ad 472 | Independent Study in Business Administration |
| Ad 428 | Public Relations | Ad 473 | Selected Topics in Business Administration |

*notes:*

** Ad 200 is a required course for the major, and should be taken in the last half of the Sophomore year.*

*** All Junior year courses are required for the major. These courses require Ad 200 as prerequisite or as a concurrent course.*

**** Senior year courses, in general, require Ad 301, 306, and 310 as prerequisites or concurrent courses. See course listings for exceptions.*

Transfer students with Freshman and Sophomore level courses in Business Administration may:

- Substitute a Senior Level Administrative Studies course for Ad 310 with 4 semesters of lower division Accounting.
- Substitute a Senior Level Administrative Studies course for Ad 320 with 4 semesters of lower division Business Law.

## COURSE DESCRIPTIONS

Ad 100 THE ADMINISTRATOR. Cat. 1. 3 hrs. Prerequisites: none. A one semester course introducing students to administration. This course includes lectures, discussions, and the presence of administrators in the fields of business, health and government. Why the administrator is required, what he does, and how he does it is the focus of the course. The principal purpose of this one semester course is to act as a liberal arts survey of administration for all students, and to outline the reasons for, and subject material in, the field of administrative studies for potential majors and minors.

Ad 110 INTRODUCTORY ACCOUNTING I. Cat. 1. 3 hrs. Prerequisites: none.

Ad 111 INTRODUCTORY ACCOUNTING II. Cat. 1. 3 hrs. Prerequisite: Ad 110. This two semester course teaches the basic structure and the fundamental concepts and principles of accounting. This includes the nature and classification of accounts, the development of accounting records including special purpose journals, controlling accounts and subsidiary ledgers, and other systems and controls. The establishment of the accounting cycle and the preparation of financial statements is also covered. Consideration of such areas as sales, purchases, cash, receivables, payables, inventories, deferrals, accruals and plant assets are included.

Ad 200 INTERNSHIP SEMINAR. Cat. 1. 1-3 hrs. Prerequisites: none. A seminar which will expose and involve sophomores in the internships undertaken by seniors. As part of every senior internship, a seminar is planned every three weeks to enable students to match experiences so that common generalizations can be extracted. These meetings will rotate so that sophomores will meet one week with business interns, the next week with health interns, and the following week with government interns. The purpose of the seminar is to provide the sophomores with more information about their junior and senior years in the major, and to prepare them for a more productive internship of their own as seniors, if they so choose.

Ad 300 THEORY AND CASES IN ADMINISTRATION I. Cat. 1. 3 hrs. Prerequisite: Ad 200 (which may be taken concurrently).

Ad 301 THEORY AND CASES IN ADMINISTRATION II. Cat. 1. 3 hrs. Prerequisite: Ad 300. This course covers the role of administrator in the organization. The first semester will be more theoretically oriented,presenting concepts of the organization and administration of business, health and governmental institutions. The administrator's function in organizing, directing, and the relationship of his authority and responsibility are treated in detail. The second semester continues the work of the first semester, with relatively more emphasis on a series of cases in business, health and government which serve to emphasize the balance that is required of a successful administrator.

Ad 305 PRINCIPLES OF SUPERVISION. Cat. 1. 3 hrs. Prerequisite: Ad 200 (which may be taken concurrently). This first semester demonstrates to the potential supervisor that proficiency in management will enable him to contribute more effectively to the overall goals of his organization and make him a more valuable part of the management team. It introduces the potential supervisor to his role in planning, organizing, staffing, directing, controlling and labor relations.

Ad 306 PRINCIPLES OF PERSONNEL MANAGEMENT. Cat. 1. 3 hrs. Prerequisite: Ad 305. This second semester concentrates on the organization and management of people to achieve the objectives of the organization and to provide individual and group satisfaction. Topics include organizational development, job analysis, wage and salary structures, evaluation techniques, training programs, and employee services and benefits.

Ad 310 MANAGERIAL ACCOUNTING AND BUDGETING. Cat. 1. 3 hrs. Prerequisites: Ad 110, Ad 111, & Ad 200 (which may be taken concurrently). A one semester course at the intermediate accounting level. The emphasis is given to the analysis of financial statements of generally accepted accounting practices from the administrator's viewpoint. The use of summary statements for understanding the financial position of the organization will carry a major emphasis. Also stressed are the problems of budgeting and the cost of goods and services in all these areas of administrative studies.

Ad 315 INFORMATION SYSTEMS. Cat. 1. 3 hrs. Prerequisites: Cs 150, Cs 170, Ad 310. A one semester course looking at the organization as a system of information flows. Several systems will be developed, such as inventory control, personnel records, and accounting data.

Ad 320 LAW FOR THE ADMINISTRATION. Cat. 1. 3 hrs. Prerequisite: Ad 200 (which may be taken concurrently). As organizations have developed and matured, there has grown up with them and about them a legal framework which is important to the administrator. Management's tradition of engaging professional legal counsel to deal with particular problems arising in these areas will undoubtedly continue. Nevertheless, a substantial degree of familiarity with the past history and present structure of these regulations is necessary for the effective practice of management. A heavy emphasis is given to the law of agency, to negotiable instruments, contracts and property, and warrenties and liabilities. Also, the areas covering the law of social control such as constitutionalism and pluralism, business power and legislation, and the businessman and political action are explored.

Ad 325 PLANNING, FORECASTING, AND CONTROL. Cat. 1. 3 hrs. Prerequisite: Ad 200 (which may be taken concurrently). The forecasting, planning, and control of financial, personnel and marketing strategies are studied for all types of administration. A study of the role of planning on the organization. Specific forecasting tools are included in the course. Finally, the monitering and controlling or the organization to achieve the planning goals are studied, with the more commonly used control techniques given explicit treatment.

Ad 400 ORGANIZATIONAL DEVELOPMENT I. Cat. 3. 3 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently).

Ad 401 ORGANIZATIONAL DEVELOPMENT II. Cat. 3. 3 hrs. Prerequisite: Ad 400. An examination of the critical

matter of developing and utilizing human resources within the business and governmental worlds. Initial attention focuses on basic elements of learning theory; the remainder of the course examines specific human resource development and utilization situations of current concern, with reference to the following groups: managers and administrators,technical specialists, skilled employees, female employees. Emphasis is given to current specific programs in operation.

Ad 403 FINANCIAL MANAGEMENT I. Cat. 3. 3 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently).

Ad 404 FINANCIAL MANAGEMENT II. Cat. 3. 3 hrs. Prerequisite: Ad 403. This course is designed both to describe and deal with the problems of the finance function. The point of view is that of the chief financial executive in an operating organization. Major segments of the course are (1) the nature and amount of funds needed for current operations; (2) financial analysis and forecasting; and (3) major sources of funds. Both short-term and long-term funds are discussed analytically from the point of view of risk, control and income. In (4) capital budgeting, the new student is exposed to various techniques of evaluating investment opportunities, as well as the cost of capital and its utilization investment opportunities, as well as the cost of capital and its utilization in the choice of funds. The course draws heavily on both case materials and reading associated with specific subject areas.

Ad 405 MARKETING I. Cat. 3. 3 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently).

Ad 406 MARKETING II. Cat. 3. 3 hrs. Prerequisite: Ad 405. This course provides students with a broader and more comprehensive understanding of marketing through the formulation, execution,and analysis of marketing research projects utilizing a variety of techniques at levels of sophistication appropriate to the problem. The student delves deeply enough into given realistic situations to enable him to develop a firsthand understanding of the possibilities and limitations of marketing research. Possible areas for investigation are consumer behavior, advertising, pricing, product, and channel relationships.

Ad 412 GOVERNMENT BUDGETING SYSTEMS. Cat. 3. 3 hrs. Prerequisites: Ad 301, Ad 306,(both of which may be taken concurrently). An examination of common governmental budgeting procedures,with emphasis on procedures used within the Commonwealth. PPBS techniques are explored in depth.

Ad 425 OFFICE MANAGEMENT. Cat. 3. 3 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently). The fundamental principles and successful practices of scientific management of the office. Among the subjects studied are the physical layout of the office, machinery, furniture, equipment, office form,and records, form design, preparation and use of office manuals; the establishment of centralized departments, such as filing, correspondence, etc.; the selection, training, and supervision of clerical and office employees; job evaluation; merit rating; compensation policies; and other related office management subjects.

Ad 426 SALES MANAGEMENT. Cat. 3. 3 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently). This course is designed to acquaint students with a thorough knowledge of the problems of a sales manager. He studies each step in the conduct of sales department activity including the recruiting and selection of the salesman; layout of a sales department; use of selling tools; training and compensation of salesmen; product planning; product and market research surveys; allocation of sales territories; supervision and motivation of salesmen; and how to conduct a sales meeting.

Ad 427 CREDIT MANAGEMENT. Cat. 3. 3 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently). An examination of the work of the credit manager, including sources of information, the credit instruments used in his work and methods of financial analysis. An investigation of the work of mercantile credit and collection agencies with emphasis on their relation to the work of the credit manager. A detailed study of the fundamentals of collection with stress on collection correspondence and collection instruments.

Ad 428 PUBLIC RELATIONS. Cat. 3. 3 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently). A study of men and methods employed to place the organization or industry in a favorable light in the eyes of those upon whom the prosperity of that organization depends. The scope includes public opinion, propaganda,industrial relations,consumer relations,governmental relations, controller relations and community relations.

Ad 450 HEALTH SYSTEMS IN AMERICA. Cat. 3. 2-3 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently) or consent of instructor. A one semester course focusing on the administration of institutions in the health area. The course covers the basic concepts in health and medical care system management the provision of health and medical care, the government's role in the provision of health and medical care, and finally problems, topics and issues in American health and medical care system. Students will be expected to demonstrate not only comprehension in these areas but also the ability to analyze major components (and relationships between components) providing health care, the ability to apply knowledge in a research report, and finally comprehension of the real world perspectives which health and medical leaders bring to the accomplishment of these policies and goals.

Ad 451 INTERNSHIPS IN HEALTH ADMINISTRATION. Cat. 3. 1-12 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently) or consent of instructor. The Administrative Studies Program provides majors the opportunity to gain practical experience in the operations of health administration. Qualified students can spend a variety of part-time or full-time internships with cooperating health facilities for varying lengths of time. The student participates in various managerial activities under the supervision of experienced executive and managerial personnel. Students must participate in the Internship Seminar and submit a written report upon completion of the program. An evaluation of the student's effort will be secured from the officials of the organization in which he interned.

Ad 452 INDEPENDENT STUDY IN HEALTH ADMINISTRATION. Cat. 3. 1-6 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently) or consent of instructor. Independent study in health usually involving field work, which is not an internship.

Ad 453 SELECTED TOPICS IN HEALTH ADMINISTRATION. Cat. 3. 1-6 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken consurrently) or consent of instructor. Selected topics in health administration of mutual interest to the student and faculty.

Ad 460 LAW FOR PUBLIC ADMINISTRATORS. Cat. 3. 3 hrs. Prerequisites: Ad 320 or consent of instructor. A survey of the legal requirements associated with town and state governments for the government administrator. Special attention is given to Commonwealth regulations and practices.

Ad 461 INTERNSHIPS IN GOVERNMENT ADMINISTRATION. Cat. 3. 1-12 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently) or consent of instructor. The Administrative Studies Program provides majors the opportunity to gain practical experiences in the operations of government. Qualified students can spend a variety of part-time or full-time internships with cooperating governmental agencies for varying lengths of time. The student participates in various managerial activities under the supervision of experienced executive and managerial personnel. Students must participate in completion of the program. An evaluation of the student's effort will be secured from officials of the organization in which he interned.

Ad 462 INDEPENDENT STUDY IN GOVERNMENT ADMINISTRATION. Cat. 3. 1-6 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently) or consent of instructor. Independent study in government, usually involving field work, which is not an internship.

Ad 463 SELECTED TOPICS IN GOVERNMENT ADMINISTRATION. Cat. 3. 1-6 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently) or consent of instructor. Selected topics in government of mutual interest to the student and faculty.

Ad 471 INTERNSHIPS IN BUSINESS ADMINISTRATION. Cat. 3. 1-12 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently) or consent of instructor. The Administrative Studies Program provides majors the opportunity to gain practical experience in the operations of business. Qualified students can spend a variety of part-time or full-time internships with cooperating business firms for varying lengths of time. The student participates in various managerial activities under the supervision of experienced executive and managerial personnel. Students must participate in the Internship Seminar and submit a written report upon completion of the program. An evaluation of the student's effort will be secured from officials of the organization in which he interned.

Ad 472 INDEPENDENT STUDY IN BUSINESS ADMINISTRATION. Cat. 3. 1-6 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently) or consent of instructor. Independent study in business, usually involving field work, which is not an internship.

Ad 473 SELECTED TOPICS IN BUSINESS ADMINISTRATION. Cat. 3. 1-6 hrs. Prerequisites: Ad 301, Ad 306, Ad 310 (all of which may be taken concurrently) or consent of instructor. Selected topics in business of mutual interest to the student and faculty.

## DEPARTMENT OF ART

The Art Department offers diversified courses thereby achieving a comprehensive type of program designed to meet many needs. One direction tends toward theoretical studies, i.e. art of the past, present, and future involving various art history courses, architecture, and city-planning. Another direction is towards personal involvement with actual art forms, as in the painting, print making and design courses. A third direction is in art education where the techniques needed to foster creative expression in both children and adults are stressed. These various directions endeavor to help the individual to develop his sensory perception, to become aware of the world around him and to perceive the possibilities of designing and changing the visual and physical environment.

A major in art is not available at the present time. A student may, however, elect a program of courses leading to a minor in art.

### Recommended Program for a Minor in Art

Any sequence of electives with a minimum of three hours in art history.

### *COURSE DESCRIPTIONS*

Ar 100 INTRODUCTION TO ART. Cat. 1. 3 hrs. Prerequisites: none. The theory and practice of art, analysis of methods and materials of the artists through use of slides and museum trips; studio work introduces student to technical procedures, principles of design, methods of representation.

Ar 110 HISTORY OF ART - PART I. Cat. 1. 3 hrs. Prerequisites: none. A survey of art styles and movements from prehistoric man to Renaissance; painting, sculpture, architecture; museum trips will be required.

Ar 111 HISTORY OF ART - PART II. Cat. 1. 3 hrs. Prerequisites: none. Art styles and movements from Renaissance to present; the effects of scientific advances and sociological changes; emphasis on painting, but including sculpture and architecture; museum trips required.

Ar 115 MEDIEVAL ART. Cat. 1. 3 hrs. Prerequisites: none. Developments in sculpture, architecture, and painting in western Europe from c. 800 to c. 1400; naturalism and the heralding of the Renaissance; the effects of the social and intellectual climate on art.

Ar 116 HISTORY OF RENAISSANCE ART. Cat. 1. 3 hrs. Prerequisites: none. Development of art in Italy and northern Europe from c. 1400 to c. 1700; social and intellectual trends in their relationship to the arts; the changing status of the artist.

Ar 120 HISTORY OF AMERICAN ART. Cat. 1. 3 hrs. Prerequisites: none. Painting, sculpture, architecture and urban planning from pre-revolutionary times to the present. Includes American Black art and regional schools of art.

Ar 125 ART OF THE 20TH CENTURY - PART I. Cat. 1. 3 hrs. Prerequisites: none. Art movements from c. 1870 to the post World War I period – Monet, Van Gogh, Cezanne, Gauguin, Picasso, Matisse, Munch, Nolde, etc. Related expression in sculpture and architecture.

Ar 126 ART OF THE 20TH CENTURY - PART II. Cat. 1. 3 hrs. Prerequisites: none. Post World War I present Constructivism, De Stijl, metaphysical painters, dada, surrealism and other movements growing out of Germany, France and America. Abstract expressionism, op, pop, minimal and recent art.

Ar 200 INTRODUCTION TO DESIGN. Cat. 1. 3 hrs. Prerequisites: none. Two-dimensional design; exploration of form, line, and shape will be conveyed through sensory images and techniques; lecture and studio.

Ar 201 ADVANCED DESIGN. Cat. 1. 3 hrs. Prerequisite: Ar 200. Advanced problems in two-dimensional design

Ar 210 CREATIVE PAINTING I. Cat. 1. 3 hrs. Prerequisites: none.

Ar 211 CREATIVE PAINTING II. Cat. 1. 3 hrs. Prerequisites: Ar 210 or equivalent. The representative schools of painting; particular attention to personal applications; will use same techniques as the artist, but in a creative way.

Ar 211 is a continuation of Creative Painting I; a studio course concerned with individual painting projects.

Ar 215 DRAWING IN VARIOUS MEDIA. Cat. 1. 3 hrs. Prerequisites: none. A studio course designed to acquaint the student with the various potentials of ink, pastels, charcoal,watercolor, etc.,alone or in various combinations.

Ar 216 FIGURE DRAWING. Cat. 1. 3 hrs. Prerequisites: none. Drawing of the male and female figure using pencil, Conte, pastel, pen and ink, watercolor, etc. (A model fee will be charged.)

Ar 218 CREATIVE CRAFTS. Cat. 1. 3 hrs. Prerequisites: none. A studio course investigating various techniques applicable to classroom teaching; stress on individual creative projects.

Ar 220 ENVIRONMENTAL DESIGN I. Cat. 1. 3 hrs. Prerequisites: none. A studio course designed to develop awareness of visual environmental trends within the United States. Such areas will be investigated as the design of small urban spaces, townships, city esthetics, street furniture and systematic uglification of the environment.

Ar 230 MODERN ARCHITECTURE AND CITY PLANNING. Cat. 1. 3 hrs. Prerequisites: none. Growth and design of urban and regional centers in Europe and America in the 19th and 20th centuries.

Ar 300 CONTEMPORARY AMERICAN ESTHETICS. Cat. 3. 3 hrs. Prerequisite: Ar 200. Seminar and studio; the problems involved in the deteriorating American environment.

Ar 320 SCULPTURE I. Cat. 1. 3 hrs. Prerequisites: none. An introduction to basic sculpture techniques; clay and terra cotta studies of the head and figure; plaster, including piece molds.

Ar 330 SCULPTURE II. Cat. 1. 3 hrs. Prerequisites: none. Work in various techniques including metal sculpture with introduction to wood (students must provide own wood chisels).

Ar 331 PRINT-MAKING. Cat. 1. 3 hrs. Prerequisite: Any studio course. A studio course investigating various methods of producing prints, woodcuts, monoprints, etching, silk screen, etc.

Ar 350 PORTRAIT PAINTING. Cat. 2. 3 hrs. Prerequisites: Ar 211. A studio course designed to acquaint the student with various styles which can be used in a creative approach to portraiture.

Ar 500 INDEPENDENT STUDY IN ART. Cat. 1. 3 hrs. Prerequisites: none. An opportunity for the student to engage in self-arranged studies (in consultation with the chosen instructor) according to individual needs and interests. A plan of study will be required prior to registration. Limited to art minors with a minimum of 12 semester hours.

Note: *Studio courses cost from $20 to $40 for materials Please consider this expense before registering.*

## DEPARTMENT OF BIOLOGY

A knowledge of fundamental principles of biology is essential to man's self-understanding and to making reality more intelligible. It should further the rational evaluation of some of man's major problems. Courses in the department are directed toward cultivating the scientific method of inquiry.

Programs available in the department include a major and minor in Biology. Students fulfilling the major requirements will have gained a deeper understanding of fundamental life processes, an appreciation of the history and diversity of life in the biosphere, a critical concern for the environment, and the role of biomolecular mechanisms in the maintenance of life.

The core curriculum in biology aims at preparing students for admission to graduate or professional schools, teaching at elementary and secondary levels, and positions in applied biology and ancillary fields. Biology electives taken to supplement the core provide the student with a variety of such training options as pre-medicine, pre-veterinary medicine, pre-dentistry, pre-optometry, biological technology, teaching, environmental technology, and environmental health. The biology core may also be supplemented with courses in administrative studies which would complete the training of the individual for administration in the life sciences.

## Biology Major Requirements

A biology major is required to complete the following: General Botany and General Zoology (8 credits) and a minimum of two of the following: 1) Genetics, 2) Principles of Ecology, 3) Biological Techniques, and 4) Introduction to Cell Biology (3 credits each). In addition, the biology major must complete Biology Seminar (2 credits) and a minimum of five additional courses selected from the departmental offerings with the advice and consent of a biology Faculty Advisor. A course is designated as a 3 or 4 credit offering while a half course is 1 or 2 credits.

Biology majors who wish to be recommended by the department for participation in student (practice) teaching, certification for secondary school teaching, and/or admission to graduate or professional school should also complete the following: mathematics (Statistics, Algebra, Trigonometry, Analytical Geometry, and/or Calculus-6 credits minimum), chemistry (8 credits minimum - 12 credits preferred), and Biological or General Physics (6 credits).

Biology majors who wish to participate in student (practice) teaching shall have completed a minimum of six biology courses, and a minimum of 12 credit hours in the ancillary science and mathematics courses. A grade point average of 2.4 must be maintained in biology courses while a grade point average of 2.0 must be maintained in the ancillary sciences and mathematics courses.

## Biology Minor Requirements

A biology minor is required to complete the following: General Botany and General Zoology (8 credits), and a minimum of two of the following courses - 1) Genetics, 2) Principles of Ecology, 3) Biological Techniques, and 4) Introduction to Cell Biology (3 credits each). In addition, the biology minor must complete a minimum of two additional 3 or 4 credit biology courses selected with the advice and consent of a biology Faculty Advisor. The biology minor should also complete a minimum of 6 credit hours in ancillary sciences.

## Biology Major — Education Minor Requirements

Students who wish to prepare for certification to teach in the secondary schools must also minor in education. A biology major-education minor is subject to approval by both the Departments of Biology and Education. Courses required for a minor in education are included in the Education Department's section of this catalog.

Biology majors who wish to participate in student (practice) teaching shall have completed a minimum of six biology courses, and a minimum of 12 credit hours in the ancillary sciences and mathematics courses. A grade point average of 2.4 must be obtained in biology courses while a grade point average of 2.0 must be obtained in the ancillary science and mathematics course work.

## Recommended Program for Biology Majors (B.A. / B.S.)

### FRESHMAN

| Fall Semester | Spring Semester |
|---|---|
| Mathematics | Mathematics |
| General Chemistry | General Chemistry |
| General Botany | General Zoology |

### SOPHOMORE

| Fall Semester | Spring Semester |
|---|---|
| Genetics* | Biological Techniques* |
| Principles of Ecology* | Introduction to Cell Biology* |

## Recommended Program for Biology Majors (continued)

| JUNIOR | | SENIOR | |
|---|---|---|---|
| Fall Semester | Spring Semester | Fall Semester | Spring Semester |
| Biology Elective** | Biology Elective** | Biology Elective** | Biology Seminar*** |
| Biology Elective** | Biology Elective** | | |

** The biology major must complete a minimum of two courses from this group of four.*

*** A minimum of five biology courses must be elected in addition to the "core" of General Botany and General Zoology, and two of the four indicated *.*

**** May be taken either semester; required of all majors.*

## *COURSE DESCRIPTIONS*

Bi 101 SOCIAL BIOLOGY. Cat. 2. 3 hrs. Prerequisites: none. This introductory course for the non-major stresses a "humanistic" approach to the major biological problems of the day; the social implications of medicine, behavior, genetics, population, environment, and evolution will be examined; emphasis on the role of biology within the social framework; three lectures per week. A distributional elective for the non-major.

Bi 102 DISEASES AND MANKIND. Cat. 2. 3 hrs. Prerequisites: none. The nature and impact of disease epidemics on the course of human history; includes an analysis of the effects of disease on economics, social life, law, history, religion, philosophy, science, art, literature, and music. The nature and current significance of disease will be explored; three lectures per week. A distributional elective for the non-major.

Bi 103 BOTANICAL WORLD. Cat. 2. 3 hrs. Prerequisites: none. Understanding and appreciating the plant world; identification keys for native trees, flowers, algae, and fungi; lectures, demonstrations, field trips; student collections are encouraged; three lectures per week. A distributional elective for the non-major.

Bi 111 GENERAL BIOLOGY I. Cat. 1. 3 hrs. Prerequisites: none — recommended for the non-major.

Bi 112 GENERAL BIOLOGY II. Cat. 1. 3 hrs. Prerequisites: none — recommended for the non-major. Current biological problems as they apply to man, especially molecular and ecological factors.

Bi 111 - an in-depth study of cellular and living systems with laboratory concentration on selected chemical and physical characteristics of life;

Bi 112 - current biological problems such as pollution, population, radiation, nutrition, ecology and conservation, with laboratory concentration on human problems as demonstrated in populations of animals and plants; two lectures and a two-hour laboratory per week.

Bi 151 GENERAL BOTANY. Cat. 1. 4 hrs. Prerequisites: none — recommended for biology majors. The plant kingdom; taxonomy, natural history, anatomy, and evolutionary relationships; identification, classification, and dissection from macro- and microscopic viewpoints; three lectures and a three-hour laboratory per week.

Bi 152 GENERAL ZOOLOGY. Cat. 1. 4 hrs. Prerequisites: none — recommended for biology majors. The fundamental concepts of animal biology, including anatomy and physiology, development, genetics, taxonomy, ecology, and evolution; three lectures and a three-hour laboratory per week.

Bi 161 HUMAN ANATOMY AND PHYSIOLOGY I. Cat. 1. 4 hrs. Prerequisites: Bi 112, Bi 152, or departmental permission — recommended for non-majors.

Bi 162 HUMAN ANATOMY AND PHYSIOLOGY II. Cat. 1. 4 hrs. Prerequisites: Bi 112, Bi 152, or departmental permission — recommended for non-majors. Integration, organization and dynamics of normal human body systems; physiological experiments and dissection of organs and specimens.

Bi 161 - concentrates on pre-tissue biology, histology, skeletal, muscular, nervous and endocrine systems;

Bi 162 - concentrates on cardiovascular, digestive, excretory (water balance), respiratory and reproductive systems; three lectures and a two-hour laboratory per week.

Bi 201 GENETICS. Cat. 1. 3 hrs. Prerequisites: Bi 151 and Bi 152. Cytological and biochemical basis of inheritance; nature and function of genetic material; Mendelian genetics; population genetics; demonstrations supplement lectures; three lectures per week.

Bi 202 BIOLOGICAL TECHNIQUES. Cat. 1. 3 hrs. Prerequisites: Bi 151 and Bi 152. Discussion of the goals, methods, and limitations of science; a treatment of research in biology; the literature of biology; measurement and techniques; instrumentation; data organization; experimental design and presentation of results; demonstrations supplement lectures; three lectures per week.

Bi 203 PRINCIPLES OF ECOLOGY. Cat. 1. 3 hrs. Prerequisites: Bi 151 and Bi 152. Basic ecological theory relating to organism-environment interactions; population dynamics, energy flow, community ecology, ecosystem dynamics, and systems ecology will be stressed; demonstrations and field trips will supplement lectures; three lectures per week.

Bi 204 INTRODUCTION TO CELL BIOLOGY. Cat. 1. 3 hrs. Prerequisites: Bi 151 and Bi 152. The ultrastructure and cytochemistry of cell organelles are related to their functions; discussion of the evolution of cellular molecular machinery, cell bioenergetics, and nuclear phenomena; demonstrations supplement the lectures; three lectures per week.

Bi 211 MICROTECHNIQUES. Cat. 2. 3 hrs. Prerequisites: none, but Bi 151 and Bi 152 recommended. Practical experience in making permanent microscope slides of plant and animal tissue by means of paraffin embedment; involves selection of material, killing and fixation, dehydration, embedment, sectioning, mounting and staining; two lectures and a two-hour laboratory per week.

Bi 212 INVERTEBRATE ZOOLOGY. Cat. 1. 4 hrs. Prerequisites: two courses in biology. Anatomy, taxonomy, natural history and evolutionary relationships of selected invertebrate phyla; a review of the International Congress of Zoological Nomenclature and selected articles of its Code; specimens are identified; classified, and dissected; three lectures and a three-hour laboratory per week.

Bi 221 MICROBIOLOGY. Cat. 1. 4 hrs. Prerequisites: two courses in biology. The inter-relationship of host, parasite, and environment; morphology, physiology, stress factors, infection and immunity, epidemiology; microbiological techniques and appropriate experiments; three lectures and a three-hour laboratory per week.

Bi 231 COMPARATIVE VERTEBRATE ANATOMY. Cat. 2. 4 hrs. Prerequisites: four courses in biology. Taxonomy and phylogeny of prochordates and chordates reviewed, systematic comparison of the morphology of representative chordates to illustrate evolution, establish homology, analogy, and nomemclature; identification and classification of specimens; dissection of shark and cat; three lectures and a three-hour laboratory per week.

Bi 241 ENTOMOLOGY. Cat. 2. 4 hrs. Prerequisites: three courses in biology. Anatomy, behavior, habitat, natural history, physiology, and taxonomy of insects; ecological factors; chemical and biological control; insect specimen collections required; three lectures and a three-hour laboratory per week.

Bi 251 MYCOLOGY. Cat. 2. 4 hrs. Prerequisites: three courses in biology. The fungal world from morphological, cytological, physiological, and evolutionary viewpoints; genera and species of economic importance; culturing methods; three lectures and a three-hour laboratory per week.

Bi 301 PLANT PHYSIOLOGY. Cat. 2. 4 hrs. Prerequisites: Bi 151 and organic chemistry. The major areas of plant physiology emphasizing fundamental principles underlying plant processes and plant responses to environmental factors; the physiological processes involved in growth, development, nutrition, and metabolism of plants; three lectures and a three-hour laboratory per week.

Bi 311 EMBRYOLOGY. Cat. 1. 4 hrs. Prerequisites: four courses in biology. The history of embryology and ontogeny of selected invertebrate and vertebrate embryos; principles of cellular, tissue, and organ differentiation and mental stages; three lectures and a three-hour laboratory per week.

Bi 321 ENDOCRINOLOGY. Cat. 1. 4 hrs. Prerequisites: Bi 162 or Bi 371, Introduction to Chemistry II. The role of endocrine glands in the normal integration of animals; mechanisms of hormone action, functions, and interrelationship; three lectures and a three-hour laboratory per week.

Bi 331 MARINE BIOLOGY. Cat. 2. 4 hrs. Prerequisites: four courses in biology to include Bi 212. The biology of flora and fauna in the marine environment; the distribution and production of plankton, necton, and benthos, zoogeography, evolution, bioeconomic factors and potential; students should anticipate assisting the implementation and underwriting of field trips; three lectures and a three-hour laboratory per week.

Bi 332 PARASITOLOGY. Cat. 2. 4 hrs. Prerequisites: four courses in biology. Disease-causing parasites; biological, ecological, and genetic aspects of parasitism; host-parasite interactions; the concept of disease, adaptive modifications, vectoring, and parasite evolution; specimens will be collected and identified; three lectures and a three-hour laboratory per week.

Bi 341 FIELD BIOLOGY. Cat. 2. 4 hrs. Prerequisites: Bi 151, Bi 152, and Bi 203. The habitat approach to practical applications of ecological principles through field techniques; familiarizing the student with particular habitats and their biotic and physical identity; field methods, instrumentation and their special applications; field trips are required; three lectures and a three-hour laboratory per week.

Bi 342 VERTEBRATE NATURAL HISTORY: ECTOTHERMS. Cat. 2. 4 hrs. Prerequisites: three courses in biology. Life histories, adaptations, distribution, ecology, systematics, and economic importance of ectothermic (cold-blooded) vertebrates (fish, amphibians, and reptiles) of the northeastern United States; laboratory and field work concentrates on native species; three lectures and a three-hour laboratory per week.

Bi 352 WILDLIFE INVESTIGATIONAL TECHNIQUES. Cat. 2. 4 hrs. Prerequisites: Bi 151, Bi 152, and Bi 203. Procedures for collecting and analysis of laboratory data in wildlife surveys, management and administrative studies, and research investigations; concentrates on vertebrate game species with adaptations for other forms of wildlife; instrumentation, record keeping, habitat evaluation, population estimation, determination of sex and age, population analysis, field preservation of live material, post-mortem exams, mortality measurement, food habit study, project planning, use of the literature on wildlife, and preparation of research reports; three lectures and a three-hour laboratory per week.

Bi 361 COMPARATIVE ANIMAL PHYSIOLOGY. Cat. 2. 3 hrs. Prerequisites: Bi 151 and Bi 152. Comparison of major physiological processes; the physiological basis for particular ecological niche; and study of animal diversity; representation topics — nervous integration, circulation, respiration, metabolism, nutrition, inorganic ions and excretion, and water and electrolyte balance;three lectures per week.

Bi 371 MAMMALIAN PHYSIOLOGY. Cat. 2. 4 hrs. Prerequisites: four courses in biology, and one course in zoology or its equivalent. Detailed physiology of the circulatory, digestive, excretory, muscular, nervous, and respiratory systems, including human systems; techniques for measuring physiological phenomena; experimental

approach is stressed and student projects are encouraged; three lectures and a three-hour laboratory per week.

Bi 401 BIOLOGY SEMINAR. Cat. 1. 2 hrs. Prerequisites: departmental permission, Senior biology majors only. Preparation and presentation of biological topics, chosen with the advice and consent of a Faculty Advisor; minimum of two scheduled, departmentally supervised meetings each week.

Bi 412 MOLECULAR BIOLOGY. Cat. 2. 4 hrs. Prerequisites: four courses in biology. Genesis and function of classical biology with stress on molecular form; evolution, exploitation, and ramification of molecular structure in cells, organs and organisms; demonstrations, experiments, and readings; three lectures and a three-hour laboratory per week.

Bi 422 ENVIRONMENTAL PHYSIOLOGY. Cat. 2. 4 hrs. Prerequisites; Bi 371 or Bi 361 or Bi 161, and Introduction to Chemistry II. Mammalian physiological systems involved in response to extreme natural and artificial environments; specific stresses, mechanisms of adaptation, pathology, and homeostatic mechanisms; three lectures and a three-hour laboratory per week.

Bi 451 SELECTED TOPICS IN BIOLOGICAL SCIENCES. Cat. 3.. 1-4 hrs. Prerequisites: departmental permission and consent of instructor. Each topic is a lecture and/or laboratory course in a selected area of the biological sciences presented by a departmental Instructor (s) and Guest Lecturers (where applicable); topic to be announced in advance; topics offered will meet student needs and interests.

Bi 495 BIOLOGICAL PROBLEMS. Cat. 3. 1-4 hrs. Prerequisites: departmental permission and consent of instructor. Advanced semi-independent study of an approved biological problem, directed by a departmental faculty member; minimum of two departmentally supervised meetings per week.

## DEPARTMENT OF CHEMISTRY

It is the aim of the Department of Chemistry to provide programs to meet the needs and interests of students. Such needs and interests may range from the student majoring in a non-technical area who is interested in learning something about chemistry and the way in which it functions as an experimental science to the student who wishes to undertake a program of professional training in chemistry to prepare him to go on to graduate school or to do chemical research in government or industry. The student majoring in a non-technical area who wants to learn something about chemistry and the way it functions is advised to take Ch 105 or Ch 110 and Ch 111. The student majoring in a science such as physics or biology who wishes to take a course in General Chemistry is advised to take Ch 120 and Ch 121.

The sequence of courses which makes up the major in chemistry described below is designed for students who wish to prepare for careers in the teaching of chemistry in secondary schools, or for careers in such diverse areas as medicine, dentistry, pharmacy, oceanography, or chemical sales. It is intended to provide the student with the flexibility to undertake a wide variety of minors. The student intending to go on to graduate school in chemistry or directly into chemical research in government or industry is expected to take at least two 400 level courses in chemistry.

### Chemistry Major Requirements

The requirements for a major in Chemistry are: General Chemistry I-II; Chemical Analysis: Introduction to Modern Methods, or Instrumental Analysis; Organic Chemistry I; Organic Chemistry Laboratory I; Physical Chemistry I; and Physical Chemistry Laboraotry I. In addition to the above courses, which total 22 semester hours, the student is required to elect at least 8 semester hours in chemistry credits to be chosen from Organic Chemistry II, Organic Chemistry Laboratory II, Physical Chemistry II, Physical Chemistry Laboratory II, Advanced Inorganic Chemistry, Qualitative Organic Analysis, Biochemistry, Chemical Analysis, Instrumental Analysis, Special Topics in Physical Chemistry, and Independent Study.

Chemistry majors are also expected to take mathematics through Calculus I-II and to take General Physics I-II. It is recommended that chemistry majors complete two years of study of a foreign language preferably Beginning German I-II through Intermediate German I-II. Students with a strong mathematical background from high school are advised to select Calculus I-II in the Freshman year, otherwise, College Algebra and Analytical Geometry are recommended. A course in Computer Science is also strongly recommended.

Students who desire a strong program of professional training in chemistry are advised to take the following sequence of courses, which is based on minimum standards set by the American Chemical Society Committee on Professional Education:

General Chemistry I-II
Organic Chemistry I-II
Organic Chemistry Laboratory I-II
Physical Chemistry I-II
Physical Chemistry Laboratory I-II

Advanced Inorganic Chemistry
Instrumental Analysis
2 advanced courses in Chemistry

Note: *In place of the two advanced chemistry courses, the student may elect advanced courses in computer science, mathematics, or physics.*

## Recommended Program for Chemistry Majors (B.A. / B.S.)

### FRESHMAN

| Fall Semester | Spring Semester |
|---|---|
| General Chemistry I | General Chemistry II |
| College Algebra or Calculus I | College Trigonometry or Calculus II |

### SOPHOMORE

| Fall Semester | Spring Semester |
|---|---|
| Organic Chemistry I | Chemistry Elective(s) |
| Organic Chemistry Laboratory I | Calculus II (if not previously taken) |
| Calculus I (if not previously taken) | |

### JUNIOR

| Fall Semester | Spring Semester |
|---|---|
| Physical Chemistry I | Chemistry Elective(s) |
| Physical Chemistry Laboratory I | General Physics II |
| General Physics I | |

### SENIOR

| Fall Semester | Spring Semester |
|---|---|
| | Chemistry Elective(s) |

## *COURSE DESCRIPTIONS*

Ch 105 **THE NATURE OF CHEMICAL CHANGE.** Cat. 1. 3 hrs. Prerequisites: none. Properties of matter viewed through simple reactions of familiar substances; two lectures and a two-hour laboratory per week.

Ch 110 **INTRODUCTION TO CHEMISTRY I.** Cat. 1. 4 hrs. Prerequisites: none.

Ch 111 **INTRODUCTION TO CHEMISTRY II.** Cat. 1. 4 hrs. Prerequisite: Ch 110

Ch 110 — atomic structure, quantum theory, chemical bonding, periodic trends, stoichiometry, equilibria and reaction rates, oxidation and reduction, acid and base theory, radioactivity and nuclear chemistry; three lectures and a three-hour laboratory per week. For students who do not plan to continue with intermediate-level courses in chemistry.

Ch 111 — continuation of Introduction to Chemistry I; concentration on organic and biochemistry; functional groups and reactions of organic chemistry, carbohydrates, proteins, lipids, nucleic acids, metabolic pathways, enzymes; three lectures and a three-hour laboratory per week.

Ch 120 **GENERAL CHEMISTRY I.** Cat. 1. 4 hrs. Prerequisites: none.

Ch 121 **GENERAL CHEMISTRY II.** Cat. 1. 4 hrs. Prerequisites: Ch 120.

Ch 120 — modern survey of the field of chemistry; gives the student a firm grounding in chemical principles and leads him to an appreciation of the impact of chemical science on man and his environment; topics — modern theories of the atom and chemical bonding, chemical equations, heats of reaction, states of matter, equilibrium, properties of solutions, acids and bases. For science majors.

Ch 121 — continuation of General Chemistry I; topics —elements of thermodynamics, rates of chemical reactions, oxidation-reduction reactions, and electrochemistry, transition metal complexes, and topics from organic chemistry, biochemistry, environmental chemistry, and nuclear chemistry.

Ch 201 **ORGANIC CHEMISTRY I** (lectures only). Cat. 1. 3 hrs. Prerequisites: Ch 120, Ch 121.

Ch 202 **ORGANIC CHEMISTRY II** (lectures only). Cat. 1. 3 hrs. Prerequisite: Ch 201.

Ch 201 — structure, reactivity, reactions, mechanisms, and stereochemistry of the alkanes, alkynes, dienes, alkyl halides, and benzene; three lectures per week.

Ch 202 — continuation of Organic Chemistry I; alcohols, ethers, carboxylic acids, aldehydes, ketones, amines and phenols; three lectures per week.

Ch 203 **ORGANIC CHEMISTRY LABORATORY I.** Cat. 1. 2 hrs. Prerequisite: Ch 201 taken previously or concurrently.

Ch 204 **ORGANIC CHEMISTRY LABORATORY II.** Cat. 1. 2 hrs. Prerequisite: Ch 203.

Ch 203 — techniques of preparation, purification, and identification of organic compounds; one four-hour laboratory per week.

Ch 204 — continuation of Organic Chemistry Laboratory I; application of basic techniques to more complicated synthetic problems; one four-hour laboratory per week.

Ch 210 **CHEMICAL ANALYSIS: AN INTRODUCTION TO MODERN METHODS.** Cat. 1. 4 hrs. Prerequisites: Ch 120, Ch 121. Introduction to modern instrumental methods of chemical analysis with emphasis on application

to environmental and biological problems; lectures offer instruction in techniques of spectroscopy,chromatography, and polarography; laboratory in project-oriented and includes field work.

Ch 301 PHYSICAL CHEMISTRY I (lectures only) Cat. 1. 3 hrs. Prerequisites: Ch 120, Ch 121; Ma 201, Ma 211.

Ch 302 PHYSICAL CHEMISTRY II (lectures only) Cat. 1. 3 hrs. Prerequisites: Ch 301.

Ch 301 — first, second, and third laws of thermodynamics; chemical, solution, and phase equilibria; dynamics; chemical, solytion, and

Ch 301 — first, second, and third laws of thermodynamics; chemical, solution, and phase equilibria; electrochemistry; three lectures per week.
Ch 302 — continuation of Physical Chemistry I; kinetic molecular theory of gases, chemical kinetics, introduction to quantum theory, modern theories of chemical binding, spectroscopy, and molecular structure; three lectures per week.

Ch 303 PHYSICAL CHEMISTRY LABORATORY I. Cat. 1. 2 hrs. Prerequisite: Ch 301 taken previously or concurrently.

Ch 304 PHYSICAL CHEMISTRY LABORATORY II. Cat. 1. 2 hrs. Prerequisite: Ch 302 taken previously or concurrently.

Ch 303 — methods of physical neasurement on

Ch 303 — methods of physical measurement on chemical systems and their application to the determination of thermodynamic data; one four-hour laboratory per week.
Ch 304 — continuation of Physical Chemistry Laboratory I; project oriented laboratory dealing with physical methods of measurement and their applications to the study of chemical reaction mechanisms and molecular properties; one four-hour laboratory per week.

Ch 410 BIOCHEMISTRY. Cat. 2. 4 hrs. Prerequisites: Ch 201, Ch 202, Ch 301, Ch 302, or the consent of instructor. Chemistry and metabolism of proteins, nucleic acids, carbohydrates, and lipids; thermodynamics; enzymes, nucleic acids and protein biosysthesis; biological oxidations; and correlations in intermediary metabolism;three lectures and a three-hour laboratory per week.

Ch 420 QUALITATIVE ORGANIC ANALYSIS. Cat. 2. 3 hrs. Prerequisites: Ch 201, Ch 202. Analysis of organic compounds having one or two functional groups, separation of mixtures, and identification of substances by their physical properties and by the preparation of derivatives; two lectures and a four-hour laboratory per week.

Ch 430 ADVANCED INORGANIC CHEMISTRY. Cat. 2. 3 hrs. Prerequisites: Ch 301 or consent of instructor. Structure and reactions of the elements and their inorganic compounds; wave mechanics, theory of the chemical bond, spectroscopy, inorganic stereochemistry, crystal field theory, coordination chemistry, and atomic structure; three lectures per week.

Ch 440 FOUNDATIONS OF CHEMISTRY AND PHYSICS. Cat.1. 3 hrs. Prerequisites: Ch 120, Ch 121, Py 120, Py 121, or consent of instructor. History, philosophy, methods, and concepts of physical science through case histories, original scientific papers, and biographies; emphasizes an understanding of science and scientists; three lectures per week. Open to science and non-science majors.

Ch 450 SPECIAL TOPICS IN PHYSICAL CHEMISTRY. Cat. 3. 3 hrs. Prerequisites: Ch 301, Ch 302. Survey of frontier areas of physical chemistry; informal seminar discussions interspersed with lectures by various members of the chemistry faculty; chemical kinetics, quantum theory of chemical bonding, molecular spectroscopy, group theory and symmetry properties of molecules; three lectures per week.

Ch 460 INDEPENDENT STUDY IN CHEMISTRY. Cat.1. 1-3 hrs. Prerequisite: Permission of the department. For the individual student who wishes to undertake advanced work in chemistry; independent study on a problem mutually agreeable to the student and to the instructor; this course may be taken for credit for more than one semester.

Ch 470 INSTRUMENTAL ANALYSIS. Cat. 1. 4 hrs. Prerequisites: Ch 120, Ch 121, Ch 301. Advanced level survey of instrumental methods of separation and analysis including spectrophotometry, potentiometry, polarography, and chromatography; lectures deal with theoretical foundations and principles of operation of types of instrumentation studied; laboratories are project oriented and deal with variety of kinds of problems in chemical analysis; course intended primarily for chemistry majors; two lectures and two three-hour laboratories per week.

## DEPARTMENT OF COMMUNICATION DISORDERS

The Department of Communication Disorders offers courses in the area of Speech and Hearing Sciences (Communication Disorders).

The Communication Disorders program includes a major, a minor, and an area of concentration for elementary education majors. The department maintains a Communication Disorders Clinic at the college. Staff members, as well as students under staff supervision, evaluate children from the surrounding communities for possible placement in the clinic. Complete diagnostic evaluations are done with each child, including articulation and language testing, visual-motor and cerebral dominance screening tests, and audiological and auditory discrimination testing. If a child is then accepted into the clinic for speech, language or auditory therapy, a student is assigned to work with him on a bi-weekly or weekly basis. Staff members supervise and evaluate this therapy.

## Communication Disorders Major Requirements

Each major must successfully complete thirty-six semester hours of communication disorders courses. The following courses are required: Phonetics, Anatomy and Physiology of the Speech and Hearing Mechanism, Speech Pathology, Audiology I, Speech Reading and Auditory Training, Speech Correction – Clinical Practicum I, Rhythm Problems and Allied Problems, and Clinical Audiology – Practicum I. The remaining twelve semester hours of courses are elected from the communications disorders electives in consultation with the student's Faculty Advisor.

A student who wishes a minor must successfully complete a minimum of eighteen (18) semester hours of communication disorders courses. These courses must follow the prescribed prerequisite system.

## Recommended Program for a Major in Communication Disorders (B.A. / B.S.)

### FRESHMAN*

| Fall Semester | Spring Semester |
|---|---|
| Speech Pathology (Cd 220) | Anatomy and Physiology of the Speech & Hearing Mechanism (Cd 270) |
| | Phonetics (Cd 230) |

### SOPHOMORE*

| Fall Semester | Spring Semester |
|---|---|
| Audiology I (Cd 350) | Speech Reading & Auditory Training (Cd 370) |

### JUNIORS AND SENIORS

Other courses as per the prerequisite system.

* The Department recommends that majors fulfill, as far as possible, their General Foundation and Distribution requirements during their first two years.

## Communication Disorders Clinic

The Communication Disorders Clinic deals with: communication problems of the deaf and hard of hearing; language disorders and disabilities; audiological assessment; diagnostic evaluations, and therapeutic casework with children and adults on a referral basis from Worcester and surrounding communities. The Clinic not only provides for a comprehensive treatment of clients but also provides experience for the student clinician in a multi-disciplinary approach to clinical services.

All training is geared to provide a wide spectrum of experiences for the student clinician who wishes to meet the necessary and often-times, rigorous requirements of the profession.

## *COURSE DESCRIPTIONS*

Cd 220 **SPEECH PATHOLOGY.** Cat. 1. 3 hrs. Prerequisites: none. Nature and courses of organic and functional speech problems, emphasis on articulation, cerebral palsy, and voice; consideration of therapeutic techniques.

Cd 230 **PHONETICS.** Cat. 1. 3 hrs. Prerequisites: none.

Cd 260 **METHODS OF SPEECH IMPROVEMENT IN THE CLASSROOM.** Cat. 2. 3 hrs. Prerequisites: none. Teaching techniques and materials for development of basic speech skills.

Cd 270 **ANATOMY AND PHYSIOLOGY OF THE SPEECH & HEARING MECHANISM.** Cat. 1. 3 hrs. Prerequisite: Cd 220. Characteristics of the speech and hearing mechanisms; acoustical characteristics of sound.

Cd 300 **LANGUAGE DISORDERS IN CHILDREN.** Cat. 1. 3 hrs. Prerequisite: Cd 220. Normal speech and language development; processes enhancing or interfering with this development.

Cd 350 **AUDIOLOGY I.** Cat. 1. 3 hrs. Prerequisites: Cd 220, Cd 270. Basic acoustics, anatomy and physiology of human ear, and ear pathologies. Introduction to audiometric testing techniques.

Cd 360 **SPEECH CORRECTION - CLINICAL PRACTICUM I.** Cat. 1. 3 hrs. Prerequisites: Cd 220, Cd 230, Cd 270, Cd 300, Cd 350, Cd 400.

Cd 361 **SPEECH CORRECTION - CLINICAL PRACTICUM II.** Cat. 1. 3 hrs. Prerequisite: Cd 360.

Cd 360 – basic experience in diagnosis and treatment of speech disorders. Emphasis upon diagnostic tools, appropriate therapy and/or referral processes.

Cd 361 – continuation of Speech Correction - Clinical Practicum I; advanced experiences in diagnostic procedures and appropriate therapies with severe

speech disorders of organic, psychological and/or functional etiologies.

Cd 365 TESTS AND MEASUREMENTS IN SPEECH CORRECTION. Cat. 2. 3 hrs. Prerequisites: Cd 220. General role of diagnosis in speech and hearing therapy; specific consideration of diagnostic tests and procedures.

Cd 370 SPEECH READING AND AUDITORY TRAINING. Cat.1. 3 hrs. Prerequisite: Cd 350. Techniques of teaching speech reading and auditory training. Brief introduction to hearing aids.

Cd 371 CLINICAL AUDIOLOGY - PRACTICUM I. Cat. 1. 3 hrs. Prerequisite: Cd 370. Standard audiometric test battery used for differential diagnosis; interpretation of results, recommendations and referrals; clinical practicum in college facilities.

Cd 372 ADVANCED AUDIOLOGY. Cat. 1. 3 hrs. Prerequisite: Cd 371. Review of standard procedures for audiometric testing; emphasis on complex audiologic testing, problems and equipment, i.e. BEKESY, SISI, ABLB, DELAYED FEEDBACK, MASKING, MADSEN-BRIDGE, etc.

Cd 373 CLINICAL AUDIOLOGY - PRACTICUM II. Cat. 1. 3 hrs. Prerequisite: Cd 372. Advanced experiences with complex audiological problems using current medical and technical research data;emphasis upon data from research as applied to the human ear disorder and its ensuing handicap.

Cd 380 PRINCIPLES OF TEACHING THE HANDICAPPED. Cat. 2. 3 hrs. Prerequisite: none. Special methods and techniques for teaching the handicapped who have speech and hearing impairments,e.g., cleft palate, deaf, cerebral palsy.

Cd 390 FEEDBACK APPROACH TO SPEECH PATHOLOGY. Cat. 2. 3 hrs. Prerequisite: Cd 370. Application of cybernetic principles to speech habilitation; therapy for disorders of language, articulation, voice, and rhythm.

Cd 400 RHYTHM PROBLEMS AND ALLIED DISORDERS OF SPEECH. Cat. 1. 3 hrs. Prerequisite: Cd 220. Major theories of stuttering and associated problems, e.g. cluttering; basic therapeutic procedures for children and adults.

Cd 410 NEUROLOGICAL DISORDERS OF SPEECH. Cat. 2. 3 hrs. Prerequisite: Cd 220. Communication difficulties associated with cerebral insult; rehabilitative procedures in speech and language.

Cd 420 ORGANIZATION OF PUBLIC SCHOOL SPEECH PROGRAMS. Cat. 2. 1-3 hrs. Prerequisite: Cd 360. Objectives of speech correction programs; organizational guidelines; individual and group practice.

Cd 430 INDEPENDENT STUDY IN COMMUNICATION DISORDERS. Cat. 3. 1-3 hrs. Prerequisite: consent of instructor. The student will pursue an area of special interest in speech pathology or audiology through research or field experience under faculty supervision.

# COMPUTER SCIENCES PROGRAM

A minor in computer science is offered at WSC. The program provides a core of courses which gives a student a strong knowledge of computer science that will complement his training in his major discipline. A minor in computer sciences can provide a student with a variety of job opportunities in computer-oriented fields. The program can also enrich the knowledge of a student who has had previous exposure to computer science in high school.

## *COURSE DESCRIPTIONS*

Cs 100 COMPUTER FUNDAMENTALS FOR COMPUTATION. Cat. 3. 1 hr. Prerequisites: none. Elementary computer programming in BASIC.

Cs 150 INTRODUCTION TO COMPUTER SCIENCE. Cat. 1. 3 hrs. Prerequisites: none. Basic computer operation, capabilities, application in such fields as education, and effect on modern society;familiarization with terminology and equipment; programming using the language BASIC: non-technical approach.

Cs 160 COMPUTER PROGRAMMING WITH FORTRAN IV. Cat. 1. 3 hrs. Prerequisites: none. Mathematical and scientific problem solving; real and integer arithmetic, input and output statements,control statements, do-loops, basic FORMAT, subscribed variables, subroutines, double-pricision and character manipulation.

Cs 170 COMPUTER PROGRAMMING WITH COBOL. Cat. 2. 3 hrs. Prerequisites: none. Fundamentals of COBOL programming; application to business-oriented problems.

Cs 200 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING. Cat. 2. 3 hrs. Prerequisites: Cs 160 or Cs 170. Memory and addressing, data representation, variable and fixed word length systems, real and integer arithmetic; assembly language programming.

Cs 210 MANAGEMENT DATA PROCESSING. Cat. 2. 3 hrs. Prerequisites: Cs 150 or equivalent. Management applications of digital computers; file maintenance programming in RPG.

Cs 225 LOGICAL DESIGN I. Cat. 3. 3 hrs. Prerequisite: one year of physics.

Cs 226 LOGICAL DESIGN II. Cat. 3. 3 hrs. Prerequisite: Cs 225.

Cs 225 – introduction to design of electronic logic circuits, Boolean algebra and its application to switching circuits.

Cs 226 — continuation of Logical Design I; analysis of internal structures of a typical digital computer; memory devices and arithmetic control circuits; input-output and interface techniques.

Cs 400 INDEPENDENT STUDY IN COMPUTER SCIENCE. Cat. 1. 1-3 hrs. Prerequisite: Permission of the instructor.

## Recommended Sequence of Study for a Minor in Computer Sciences

| Number | Title | Hours | Prerequisites |
|---|---|---|---|
| Cs 150 | Introduction to Computer Science | 3 | None |
| Cs 160 | Computer Programming with FORTRAN IV | 3 | None |
| Cs 170 | Computer Programming with COBOL | 3 | None |
| Cs 200 | Computer Organization & Assembler Language Programming | 3 | Cs 160 or Cs 170 |
| Cs 210 | Management Data Processing | 3 | Cs 150 or equivalent |
| Cs 225 | Logical Design I | 3 | 1 year of Physics |
| Cs 226 | Logical Design II | 3 | Cs 225 |
| Cs 400 | Independent Study | 1-3 | Permission of instructor |
| Ma 400 | Introduction to Numerical Analysis | 3 | None |

# DEPARTMENT OF ECONOMICS

The Department of Economics offers a program of studies which has two basic purposes. First, it is designed to provide undergraduate training for those students who wish to pursue professional economics careers in government, industry, and academic institutions, or to obtain background for some other career such as law. Secondly, and as equally important, economics is offered as part of an interdisciplinary approach to social science education at the college in various forms, such as, Urban Studies, Administrative Studies, or as a general service area for students.

## Economics Major Requirements

A minimum of thirty (30) semester hours credit in economics is required, and must include the following courses: Principles of Economics I & II; Microeconomics;Macroeconomics;Statistics. Strongly recommended as one of the remaining elective courses is Introduction to Mathematical Economics.

## Recommended Program for Economics Majors (B.A. / B.S.)

### FRESHMAN

| Fall Semester | Spring Semester |
|---|---|
| Principles of Economics I | Principles of Economics II |
| Foundation and Distribution Electives | Distribution electives |

### SOPHOMORE

| Fall Semester | Spring Semester |
|---|---|
| Macroeconomics | Microeconomics |
| Distribution and Minor Electives | Distribution and Minor Electives |

JUNIOR AND SENIOR

Following the Sophomore year, there is no suggested model for the economics major. Each student has the opportunity to study that area of economics which interests him the most. His professional aims and objectives will direct the remainder of his program which will be designed in working with the Faculty Advisors.In general, the department recommends that the distribution requirements be completed and that work in earnest begin on the major and minor (and possibly a second major).

## Recommended Program for a Minor in Economics

Ec 100 Principles of Economics I and any other 100 level economics course is recommended. Also, any other four courses in economics. If a minor and his major department request it, aid in setting up a coordinated minor for the student can be obtained from the Advisors in the Economics Department.

## *COURSE DESCRIPTIONS*

Ec 100 **PRINCIPLES OF ECONOMICS I.** Cat. 1. 3 hrs. Prerequisites: none.

Ec 101 **PRINCIPLES OF ECONOMICS II.** Cat. 1. 3 hrs. Prerequisite: Ec 100.

Ec 100 — an introduction to the basic economic analysis of full employment of national resources and their efficient allocation within the American mixed-enterprise system.

Ec 101 — continuation of Principles of Economics I; an in-depth analysis of the special problems and policies of stable employment and prices, market competition and distribution of income in the United States; the economic growth of an affluent society, and trade relations with the rest of the world.

Ec 200 **MICROECONOMICS.** Cat. 1. 3 hrs. Prerequisite: Ec 101. An intermediate level treatment of the theory of market pricing in a private enterprise system as it affects the resource and output decision of firms and industries under various market structures and the behavior of consumers.

Ec 201 **MACROECONOMICS.** Cat. 1. 3 hrs. Prerequisite: Ec 101. An intermediate analysis of the determination of the level and growth of national income and employment; special attention given to the problems of inflation and recession and to the national fiscal and monetary policies designed to maintain full employment and stable price levels.

Ec 202 **LABOR ECONOMICS.** Cat. 2. 3 hrs. Prerequisite: Ec 100. A study of the process of wage determination in a market economy; consideration given to the evolution of union organization and collective bargaining affecting wages, hours, working conditions and grievance procedures for labor.

Ec 203 **INDUSTRIAL ORGANIZATION.** Cat. 2. 3 hrs. Prerequisite: Ec 100. An analysis of the problems of competition and monopoly, especially as they affect concentration of economic activity and market power in the American industrial structure; emphasis is placed upon government policy to maintain or regulate competition in the interest of public welfare.

Ec 204 **PUBLIC SPENDING & TAXATION.** Cat. 2. 3 hrs. Prerequisite: Ec 101. An analysis of government spending, revenue sharing, and taxation; includes the impact of government spending upon efficient use of resources and national growth.

Ec 205 **INDUSTRIAL REVOLUTIONS IN THE ATLANTIC COMMUNITY.** Cat. 3. 3 hrs. Prerequisite: Ec 101. A comparative study of the industrialization of various countries beginning with the first industrial revolution in England and including the industrialization of other European nations and Japan; these historic cases of industrialization will be examined in terms of modern economic development and any implication for presently underdeveloped economies.

Ec 206 **COMPARATIVE ECONOMIC SYSTEMS.** Cat. 2. 3 hrs. Prerequisite: Ec 100. A comparative study of the theory, institutions, and problems of advanced economic systems and their historical background; particular attention given to capitalism, socialism, fascism and communism.

Ec 207 **MONETARY ECONOMICS.** Cat. 2. 3 hrs. Prerequisite: Ec 100. The historical and theoretical development of the American monetary system of commercial banks and financial intermediaries; emphasis on the role of monetary controls and policy as partial solutions to full employment, price stability, and economic growth problems.

Ec 208 **URBAN ECONOMICS.** Cat. 2. 3 hrs. Prerequisite: Ec 100. The theory and policy of the growth and development of metropolitan areas; some of the policy-related problems discussed are poverty, residential and commercial land use, and traffic congestion.

Ec 210 **CONSUMER ECONOMICS.** Cat. 1. 3 hrs. Prerequisites: none. An in-depth study of personal and family economics, of obtaining income, buying wisely, consumer borrowing, saving, and financial investment; the growing consumer protection and consumer legislation movements will be specifically emphasized.

Ec 211 **ECONOMIC DEVELOPMENT.** Cat. 2. 3 hrs. Prerequisite: Ec 100. A survey of contemporary economic theories concerning less developed countries; social, cultural, and political forces shaping the development of such countries are also investigated.

Ec 212 **DEVELOPMENT PLANNING & REGIONAL ECONOMICS.** Cat. 2 3 hrs. Prerequisite: Ec 100. Starts with a survey of some of the problems that must be dealt with by less developed countries in planning their economic development; case studies are used; second part of the course deals with theories of regional economics applicable to both developed and less developed economies.

Ec 215 RADICAL THOUGHT AND THE AMERICAN ECONOMY. Cat. 3. 3 hrs. Prerequisite: 6 hours of Principles. Radical critiques, especially Neo-Marxist ones, of corporate power, unemployment and inflation, and how the maldistribution of wealth and income are becoming more prevalent; how these forces influence U.S. Government economic policies or pose alternatives will be a major part of this study.

Ec 220 ECONOMICS OF THE ENVIRONMENT. Cat. 3. 3 hrs. Prerequisite: Ec 100. After looking at the scope and nature of the problems involved, the course devotes time to the following subjects: methods of pollution control, the socio-economic problems caused by pollution, and attempts to control it; current research now being done concerning ecology and economics; and lastly, the impact attempts to limit pollution may have on income and population growth — throughout the course, the interconnections between pollution and conservation of resources will be explored.

Ec 303 STATISTICAL ANALYSIS. Cat. 1. 3 hrs. Prerequisite: Ec 101. Basic tools of statistical analysis appropriate to research in the social sciences; topics include measures of central tendency, hypotheses testing, time series, index numbers, regression and correlation.

Ec 304 INTRODUCTION TO MATHEMATICAL ECONOMICS. Cat. 2. 3 hrs. Prerequisite: Ec 100. A survey of some basic mathematical techniques appropriate to the analysis of economic models and application of economic theory.

Ec 305 ECONOMETRICS. Cat. 2. 3 hrs. Prerequisites: Ec 101 and permission of instructor. The application of statistical techniques to the varification of economic models and examination of problems.

Ec 307 INTERNATIONAL TRADE. Cat. 3. 3 hrs. Prerequisite: Ec 101. Theories which attempt to explain why nations trade; policies and practices related to international economics.

Ec 401 INDEPENDENT STUDY IN ECONOMICS. Cat. 3. 3 hrs. Prerequisites: Ec 101 and permission of instructor. A specifically designed course for the student whose needs cannot be fully met by available offerings;actual arrangements to be made between student and professor; not intended for general enrollment; a limit of six semester hours can be acquired.

Ec 500 SEMINAR. Cat. 3. 3 hrs. Prerequisites: none. A research and discussion process intended to summarize and provide some career orientation to the undergraduate preparation of the economics major at the Senior class level.

# DEPARTMENT OF EARLY CHILDHOOD EDUCATION

The Department of Early Childhood Education offers a variety of courses which provide the student with the opportunity of preparing to teach pre-school children in such programs as day care centers, nursery schools, Head Start programs, and kindergartens.

The basic program in Elementary Education will be followed in order to ensure that the prospective teacher is certified to teach under the State certification requirements. Special courses in Early Childhood Education may be substituted for some of the recommended courses in the Elementary Education program with the approval of the student's Faculty Advisor.

## General Requirements

See the Bachelor of Science in Education Degree requirements in this catalog for General and Curricular Requirements.

## *COURSE DESCRIPTIONS*

ED 115 ORIENTATION TO EARLY CHILDHOOD EDUCATION. Cat. 1. 3 credits. Prerequisites: none. Historical and philosophical overview of programs in day care centers, Head Start centers, nursery schools and kindergartens; influence of socio-economic backgrounds; the importance of play in education for young children.

ED 270 CURRICULUM DESIGNS FOR YOUNG CHILDREN. Cat. 1. 3 credits. Prerequisites: Child Growth and Development ED 115. Planning programs; physical environment (materials, equipment, arrangement and organization); evaluation of young children through observation as a basis for curriculum planning.

ED 275 CREATIVE EXPERIENCES IN THE CURRICULUM FOR YOUNG CHILDREN. Cat. 1. 3 credits. Prerequisites: ED 270. Development and analysis of methods and materials applicable to the young child in day care centers, Montessori schools, Head Start centers, nursery schools, and kindergartens; field experiences in various educational settings with small groups of children.

ED 340 HUMAN INTERPERSONAL RELATIONSHIPS IN EARLY CHILDHOOD EDUCATION. Cat. 1. 3 credits. Prerequisites: Ps 190 — Child Growth and Development. Group dynamics and interaction analyses as they apply to the individuals, groups and systems involved in educating the young child in day care centers, nursery schools, Head Start centers and kindergartens.

ED 375 IDENTIFICATION OF LEARNING DISABILITIES IN EARLY CHILDHOOD EDUCATION. Cat. 1. 3 credits. Prerequisites: ED 260 (See Elementary Education Section).

Developing skills for the identification of learning disabilities in a child with minimal brain dysfunction (one with an average or above average I.Q.).

ED 470 ORGANIZATION AND SUPERVISION OF PROGRAMS IN EARLY CHILDHOOD EDUCATION. Cat. 1. 3 credits. Prerequisites: ED 502 (below). Organization of early childhood programs in day care centers, Head Start centers, nursery schools and kindergartens; the necessary supervisory skills needed by those evaluating programs and teachers.

ED 502 STUDENT TEACHING IN EARLY CHILDHOOD EDUCATION. Cat. 1. 6 credits. Prerequisites: ED 500 (See Elementary Education section). This will consist of eight weeks of actual teaching experience in an approved day care center, Head Start center, nursery school, or kindergarten. Must be taken the same semester as ED 500 and following ED 500.

# DEPARTMENT OF ELEMENTARY EDUCATION

The Elementary Education Department offers preparation of teachers for the elementary school. Two programs are available: Kindergarten-Primary – preparing teachers for kindergarten through grade 3; and Intermediate – preparing teachers for grades 4, 5, and 6. Both programs have been designed to meet the requirements of the Bureau of Teacher Certification and Placement of the Massachusetts Department of Education. A graduate of the elementary education program is certified to teach in Kindergarten through Grade 8 in the State of Massachusetts.

In addition to required courses in education, the student must also select a subject area for concentration in which five courses totaling fifteen semester hours will be taken. These five courses must be over and beyond the required courses in that particular subject area. This area of concentration is designed to give the student a greater depth of understanding in one selected field of study. For the Intermediate student the area of concentration is of special importance as preparation for teaching in schools which are using team teaching, open concept, nongraded, or departmentalized approaches to instruction.

## Cooperating Demonstration Schools and Faculty

Abbott Street School – Mrs. Margaret L. Walsh, Principal; Miss Teresa A. Roberts,Grade 4; Mr. Paul Bedard,Grade 5.

Lamartine Street School – Mr. James E. Feeley, Jr., Principal; Mr. John F. Monfredo, Grade 5.

May Street School – Mr. Joseph F. Mahoney, Principal; Mrs. Mary E. McGee, Kindergarten; Mrs. Virginia H. Gvazdauskas, Grade 3; Mrs. Elizabeth Philbin, Grade 3; Mrs. Barbara H.B. Hayes, Grade 5; Mr. Donald F. Moran, Grade 5.

Tatnuck School – Mr. Francis R. Hickey, Principal; Mrs. Grayce C. O'Neil, Kindergarten; Miss Anna B. Rothemich, Grade 1; Miss Carmille C. Mesale, Grade 2; Miss Mary E. Brennan, Grade 3; Miss Margaret M. Curran, Grade 3; Miss Rosemary Norton, Grade 4.

## Area of Concentration

Administrative Studies
Art
Biology
Chemistry
Communication Disorders
Dramatics (see Theatre)
English
French
Georgraphy
German
Health and Physical Education
History
Mathematics
Media
Music
Natural Science
Psychology
School Library Science
Sociology
Spanish
Theatre
Urban Studies

## Admission to the Program

I. ADVISEMENT – All faculty members must serve as Faculty Advisors. Assignment of advisees will be made by the Academic Advisor of the Elementary Education Department. Any questions relative to the assignment must be cleared with the Academic Advisor. On request, a student may indicate his or her choice of Advisor. Faculty members may request the assignment of an advisee.

Students are assigned to their Advisors at the beginning of the Freshman year and work with these Advisors throughout their college careers at Worcester State College. In addition, the Academic Advisor for the Elementary Education Department (Room 207, Administration Building) is available at any time to assist students with academic problems.

Each transfer student will be assigned a Faculty Advisor after consultation with the Academic Advisor of the Elementary Education Department.

II. PROCEDURES FOR ADMISSION TO THE ELEMENTARY EDUCATION DEPARTMENT. A student must have an all-college average of 2.3 based on a 4.00 scale by the end of three semesters or 45 course credits. The 2.3 level must be maintained through the B.S. and B.A. requirements. In exceptional instances, a student may be admitted provisionally although his quality point average is not at the 2.3 level. If, in his most recent course work, he has shown consistent gain, he will be required to secure a statement from a faculty member willing to act as sponsor for his admission. On the approval of a Screening Committee, the student's provisional status will be recognized.

Each student will be required to submit in person to his Advisor a formal application for admission to the Department of Elementary Education no later than March 1 of the Sophomore year. This form will be supplied by the department. Provision will be made on this application for a student to state his reasons for his selection of elementary education as his major. No student will be allowed to register for his Junior year education courses until this application has been received. The application will be retained by the Faculty Advisor.

Prior to acceptance into the Department of Elementary Education, the student must indicate his speech proficiency per standards prescribed by the Communication Disorders Department. (Procedures and standards will be coordinated by the Education Department and the Communication Disorders Department).

Prior to his admittance into the Department of Elementary Education, the student must indicate his proficiency in English composition per standards of the English Department or through satisfactory CLEP examination scores. (Procedures and standards will be coordinated by the Education Department and the English Department.)

III. TRANSFER STUDENTS — Each transfer student will have a personal interview with the Academic Advisor, bringing with him a transcript of all courses completed during the period of his college education. An evaluation of his transfer credits will be made and a program will be developed with the Academic Advisor.

Transfer students will conform to conditions of advisement stated in Section I and Section II.

Professors who have students in education courses prior to the second semester of the Sophomore year, will submit an evaluation of each student based on the check list used to screen students for student teaching. Advisors of prospective elementary education majors will supply additional input concerning student eligibility.

IV. RETENTION IN EDUCATION DEPARTMENT — Criteria for admission to the Elementary Education Department will be followed as standards for retention in the department.

The Appeal Committee for student teaching eligibility will also serve as the Appeal Committee for eligibility for retention in the program. In this way, cohesion and continuity will be retained.

Any student who fails to maintain the 2.3 quality-point average, or any admission standards for the department, or whose eligibility is seriously questioned by one or more staff members in Elementary Education will be exposed to the sequence below with modifications as needed: (It is recommended that the Office of the Registrar submit to the Academic Advisor a list of students not meeting the 2.3 criterion.)

a. A form letter (general in nature) will be sent to students whose retention status is in danger as in the paragraph above by the Academic Advisor at the end of the second semester of the Junior year and the first semester of the Senior year. A copy of this letter will be retained in the student's folder in the Registrar's Office. These students will be directed to see their Advisor for a conference within a two week period.

b. A list of all students notified with the names of their Advisors will be sent to all of the members of the Elementary Education Department. If the Advisee does not make an effort to contact his (her) Advisor within the two week limit, it is the responsibility of the Advisor to contact the student.

c. Guidelines for advisement:

In the event of extenuating circumstances (to be judged by the Advisor after the conference), the Advisor may recommend that the student be allowed to continue in the department. If the Advisor prefers not to make this decision, he (she) may refer the matter to the Appeal Committee.

If the Advisor does not recommend retention of the student, and the student accepts the responsibility for his (her) ineligibility, the student is responsible for stating in writing his intention of leaving the department, giving specific reasons. This letter is to be sent to the Chairman of the Department and a second copy forwarded to the Academic Advisor.

Students who challenge their dismissal from the Elementary Education Department have the right to present their appeal to the Appeal Committee.

V. ADMISSION TO AND RETENTION IN STUDENT TEACHING. During the semester immediately preceding student teaching, students will make application for student teaching with the Office of Professional Experiences.

A list of prospective student teachers will be circulated to the members of the Elementary Education Department faculty through the department chairman for evaluation of the suitability of the individual students for student teaching.

The standards applied for the college to sponsor a student in an elementary school as a student teacher are:

Academic Achievement — (1) 2.0 cumulative grade point average, (2) successful completion of professional education courses prerequisite to student teaching, and (3) 2.3 overall average in required professional education courses.

Physical Health — (1) students must provide proof of the absence of tuberculosis, and (2) this evidence must be filed with the college nurse.

Mental Health — Students must be emotionally stable and show evidence of good mental health.

Language and Speech Patterns — The Communication Disorders Department must indicate that the students

give evidence that they have a knowledge and skill in proper English usage necessary to serve as models for children.

Personal and Social Characteristics — Students must possess the qualities that schools consider related to teaching success, such as responsibility, dependability, resourcefulness, ability to work with others, etc.; evidence obtained from Evaluation forms completed by professors who use field experiences as part of their courses, and from departmental screening prior to student teaching.

Professional Ethics — students must exhibit through their behavior the sense of ethics essential to the professional teacher. Evidence will be obtained as explained under Personal and Social Characteristics (above).

If more than one faculty member indicates reservations concerning possible fitness, the case will proceed to further consideration by the Committee for Student Teaching and the faculty member indicating concern.

The Committee for Student Teaching will consist of the Director of Professional Experiences, who will serve as chairman of the committee, three (3) elected faculty members, and the Chairman of the Department, ex officio. The responsibilities of this committee will include: (1) Investigation of any questionable applicants for student teaching and making a decision pursuant to admittance to student teaching, (2) continuous evaluation during student teaching, and (3) act as a clearing house for problems which arise during student teaching.

The student under consideration has the option of having a student from the Student Advisory Committee serve on this committee.

As soon as possible after the meeting of the Committee for Student Teaching, the student will be notified of the decision of the committee and informed that if he wishes to appeal, he must do so no later than one week from the date of his receipt of the notification.

Appeal — If a student desires to appeal a decision, a meeting of the Appeal Committee will be arranged. The Appeal Committee will consist of the Associate Dean of Education, who will serve as chairman; the Director of Professional Experiences, the Chairman of the Department, the Academic Advisor (Elementary Education), and one faculty member of the student's choice.

Follow-up of Students Identified as Having Problems — Special attention will be given to the placement of these students in teaching situations by the Director of Professional Experiences. Consultation by the Director of Professional Experiences with the college supervisors concerning a student's area(s) of weakness will be held. Periodic follow-ups by the supervisor will be made of a student having problems. Communication by the college supervisor and the cooperating teacher will be made concerning students in difficulty.

Severance of a Student from the Program — In the event of continued problems of a student, a conference will be arranged between the student, the college supervisor and the cooperating teacher. Recommendation will be made to the Director of Professional Experiences for counseling and/or action. If a student desired to appeal the action, the same procedure as outlined above will be followed.

## Elementary Education Curriculum For Early Childhood Education

### Kindergarten-Primary

FRESHMAN

| 1st Semester | | 2nd Semester | |
|---|---|---|---|
| English Composition | 3 | English/Literature | 3 |
| Laboratory Science | 3 | Laboratory Science | 3 |
| Mathematics | 3 | Mathematics | 3 |
| History | 3 | History | 3 |
| Psychology (General I) | 3 | Psychology † | 3 |
| Physical Education | ½ | Physical Education | ½ |
| Speech | 2 | | |
| | 17 ½ | | 15 ½ |

† *Child Growth and Development is required as one of the Psychology courses*

### SOPHOMORE

| 1st Semester | | 2nd Semester | |
|---|---|---|---|
| Laboratory Science | 3 | Laboratory Science | 3 |
| Geography (Physical) | 3 | Geography | 3 |
| Literature | 3 | Literature | 3 |
| Music (Intro. to) | 3 | Art | 3 |
| * Orientation to American Education | 2 | | |
| Physical Education | ½ | Physical Education | ½ |
| Elective | 3 | Elective | 3 |
| | 17 ½ | | 15 ½ |

### JUNIOR

| 1st Semester | | 2nd Semester | |
|---|---|---|---|
| Sociology | 3 | * Reading in Elementary School | 3 |
| * Music in Elem. School | 2 | * Children's Literature | 2 |
| Psychology (Educational) | 3 | * Modern Instruction | 2 |
| * Methods and Materials in Social Studies & Sciences | 3 | * Art in Elementary School | 2 |
| Electives (2) | 6 | * Math. in Elementary School | 2 |
| | | * Measurement & Evaluation | 3 |
| | | Elective | 3 |
| | 17 | | 17 |

### SENIOR

| 1st Semester | | 2nd Semester | |
|---|---|---|---|
| * Student Teaching and Seminar | 12 | * History & Philosophy of Ed. | 3 |
| * Language Arts for Primary Grades | 3 | First Aid | ½ |
| | | Economics | 3 |
| | | Electives (3) | 9 |
| | 15 | | 15 ½ |

* *Required Education courses. In addition, Education courses must be elected to meet the minimum of 39 credits in Education, with the approval of a faculty counselor.*

## Elementary Education Curriculum

### Intermediate Grades

## FRESHMAN

| 1st Semester | | 2nd Semester | |
|---|---|---|---|
| English Composition | 3 | English/Literature | 3 |
| Laboratory Science | 3 | Laboratory Science | 3 |
| Mathematics | 3 | Mathematics | 3 |
| History | 3 | History | 3 |
| Psychology (General) | 3 | Psychology † | 3 |
| Physical Education | ½ | Physical Education | ½ |
| | | Speech | 2 |
| | 15 ½ | | 17 ½ |

† *Child Growth and Development is required as one of the Psychology courses.*

## SOPHOMORE

| 1st Semester | | 2nd Semester | |
|---|---|---|---|
| Laboratory Science | 3 | Laboratory Science | 3 |
| Geography (Physical) | 3 | Geography | 3 |
| Literature | 3 | Literature | 3 |
| Art | 3 | Music (Intro. to) | 3 |
| Physical Education | ½ | Physical Education | ½ |
| Elective | 3 | Elective | 3 |
| | | * Orientation to American Education | 2 |
| | 15 ½ | | 17 ½ |

## JUNIOR

| 1st Semester | | | 2nd Semester | |
|---|---|---|---|---|
| * Modern Instruction | 2 | | * Student Teaching and Seminar | 12 |
| * Reading in Elem School | 3 | | * Language Arts in Elem. School | 2 |
| * Children's Literature | 2 | | | |
| * Math. in Elem. School | 2 | | | |
| * Science in Elem. School | 2 | Choose one or more | | |
| * Social Studies in Elem. School | 2 | | | |
| Electives | 6 (9) | | | |
| | 15(16) | | | 14 |

## SENIOR

| 1st Semester | | 2nd Semester | |
|---|---|---|---|
| Psychology (Educational) | 3 | * History & Philosophy of Ed. | 3 |
| * Art in Elem. School | 2 | * Music in Elem. School | 2 |
| Economics | 3 | Sociology | 3 |
| First Aid | ½ | * Measurement & Evaluation | 3 |
| Electives (3) | 9 | Electives (2) | 6 |
| | 17 ½ | | 17 |

* *Required Education courses. In addition, a methods course in the Area of Concentration must be taken. Additional Education Courses must be elected to meet the minimum of 39 credits in Education, with the approval of a faculty counselor.*

## COURSE DESCRIPTIONS

Ed 100 ORIENTATION TO ELEMENTARY EDUCATION. Cat.1. 2 credits. Contemporary American education in a democratic society; teaching as a professional career; a practical approach to teaching.

Ed 105 MODERN INSTRUCTION: PRINCIPLES AND PRACTICES. Cat. 1. 2 credits. An analysis of good instruction in the elementary schools — emphasizing objectives, planning, organization, motivation, materials, media, and evaluation.

Ed 200 READING IN THE ELEMENTARY SCHOOL. Cat. 1. 3 credits. Intensive overview of the basic reading skills; effective teaching strategies; utilization of multi-media in reading instruction. Prerequisite to student teaching.

Ed 205 CHILDREN'S LITERATURE. Cat. 1. 2 credits. Survey of children's books; procedures fostering lasting interest in literature. Prerequisite to student teaching.

Ed 210 LANGUAGE ARTS FOR PRIMARY GRADES. Cat. 1. 3 credits. The inter-relatedness of the language arts; functional ways of working with young children; creative development of critical thinking; exploration of new media.

Ed 215 LANGUAGE ARTS IN THE ELEMENTARY SCHOOL. Cat. 1. 2 credits. The functional and creative aspects of oral and written expression; development of language power in relation to child growth.

Ed 220 MATHEMATICS IN THE ELEMENTARY SCHOOL. Cat. 1. 2 credits. Techniques for teaching arithmetic in the modern elementary school; emphasis on material development and classroom evaluation of both materials and techniques. Prerequisite to student teaching.

Ed 225 SOCIAL STUDIES IN THE ELEMENTARY SCHOOL. Cat. 1. 2 credits. The aims, methods, and materials involved in teaching social studies with emphasis on the unit and inquiry approaches, media and evaluation. Prerequisite to student teaching.

Ed 230 SCIENCE IN THE ELEMENTARY SCHOOL. Cat. 1. 2 credits. Description of science in the elementary school; objectives, curriculum, materials, current practices, trends in science teaching. Prerequisite to student teaching.

Ed 240 METHODS AND MATERIALS IN SOCIAL STUDIES AND SCIENCE. Cat. 1. 3 credits. Development of concepts, attitudes, values, skills in young children; objectives, curriculum, materials, current practices, trends in teaching social studies and science. Prerequisite to student teaching (Early Childhood: Kindergarten-Primary).

Ed 245 EDUCATIONAL PSYCHOLOGY. Cat. 1. 3 credits. Prerequisite: General Psychology I. Learning and developmental processes,motivation, retention, relationships of intelligence and achievement,personality,emotional aspects of learning.

Ed 250 ART IN THE ELEMENTARY SCHOOL. Cat. 1. 2 credits. Prerequisite: consult Art Department. The place and function of art in the elementary school; contemporary practices through laboratory experiences.

Ed 255 MUSIC IN THE ELEMENTARY SCHOOL. Cat. 1. 2 credits. Prerequisite: Introduction to Music. The child voice; selection and presentation of rote songs; guiding growth in rhythmic, notational, and listening experiences; survey of music books and materials.

Ed 260 ORIENTATION TO SPECIAL EDUCATION FOR CHILDREN WITH LEARNING DISABILITIES. Cat. 1. 3 credits. Overview of the history and development of special education with learning disabilities and their personality characteristics and needs.

Ed 265 CREATIVE PROBLEM SOLVING. Cat. 1. 3 credits. Utilizing Piaget's three basic periods of operation(preoperational, concrete and formal) in assisting the prospective teacher to become aware of the means by which the child expands his perception of the world; experiencing the concrete ways the child develops awareness of problems, and thereafter goes about solving those problems.

Ed 278 LABORATORY APPROACH TO LEARNING. Cat. 1. 3 credits. Prerequisite: Consent of Instructor. The major goal of the course will be to establish a learning center that will be open to students and faculty from our campus and from the surrounding community; commitment on the part of each class member to become intensively involved in studying the needs for this laboratory required; assuming responsibility for examining, developing, implementing and evaluating published, teacher-developed, student or self-made texts, trade books, journals and a variety of audio-visual materials; materials will be used experimentally in exploring individual learning styles, strategies, capabilities and potentialities.

Ed 280 HISTORY AND PHILOSOPHY OF EDUCATION. Cat. 1. 3 credits. Contemporary problems of education in relation to selected ancient, medieval,and modern philosophers of education.

Ed 285 EDUCATIONAL MEASUREMENT AND EVALUATION. Cat. 1. 3 credits. Study, construction, and evaluation of instruments in education; interpretation of data; criteria for selection and evaluation of behavioral objectives and standardized tests.

Ed 290 PRINCIPLES OF GUIDANCE. Cat. 1. 3 credits. Prerequisite: Juniors and Seniors only. The role of guidance and counseling in the school and the teacher's responsibilities as a functioning member of the guidance staff.

Ed 295 TEACHING FOR CREATIVITY. Cat. 1. 3 credits. Basic theories of creativity; classroom structures most suited for creative learning; devices used for measurement of this construct, and pertinent research within the last decade; designed for students interested in teaching at the elementary and secondary levels.

Ed 305 LIBRARY SKILLS IN THE ELEMENTARY SCHOOL. Cat. 1. 3 credits. For description see Me 305.

Ed 310 URBAN EDUCATION. Cat. 1. 3 credits. Prerequisite: Open to upperclassmen. Development of understanding of the social, psychological, and educational problems of the culturally different; strategies and techniques for teaching in the inner-city; practicum.

Ed 315 EDUCATION AND RACE RELATIONS. Cat. 1. 3 credits. Prerequisite: U.S. History or consent of the Instructor. The role of education in the promotion of interracial understanding; study of Black American and American Indian — their social and intellectual contributions of the culturally different to contemporary society.

Ed 325 AN INTRODUCTION TO LINGUISTICS FOR ELEMENTARY TEACHERS. Cat. 1. 3 credits. A background in linguistics; history and structure of the language; use of current texts with linguistic approaches to language.

Ed 327 EDUCATION AND EXISTENTIAL PHILOSOPHY. Cat. 1. 3 credits. Prerequisite: Ed 280, or consent of Instructor. Theistic, atheistic, and phenomenological views of existence in relation to contemporary problems of education.

Ed 355 CURRENT TRENDS IN THE TEACHING OF READING. Cat. 1. 3 credits. Prerequisite: Ed 200. Review of innovations; assessment of latest instructional materials; overview of research and current implementation of significant changes in modern reading instruction.

Ed 360 PRACTICUM: NEW ELEMENTARY SCIENCE CURRICULA. Cat. 1. 3 credits. Prerequisite: Open to Junior and Senior elementary education majors. Seminar-workshop and team field experience in local schools.

Ed 365 PROBLEMS OF INSTRUCTION IN ELEMENTARY SCHOOL SCIENCE. Cat. 1. 3 credits. Prerequisites: Ed 240 or Ed 230, or consent of Instructor. Analysis of current practices; identification of problems; adaptation of available materials, resources consistent with existing science curricula.

Ed 395 SOCIAL ACTION EDUCATION PRACTICUM. Cat. 1. 3 credits. Prerequisite: Upperclassmen. Work-study program provides students with an opportunity to work in different social and educational agencies under supervision.

Ed 410 THE SLOW LEARNER IN THE ELEMENTARY SCHOOL. Cat. 1. 3 credits. Prerequisite: Ed 500. Diagnostic and remedial measures studied, analyzed and applied to the slow learner (IQ 70 to 90) in the elementary school; curriculum content and innovative methodology in the light of current psychological findings.

Ed 415 EDUCATION OF THE GIFTED. Cat. 1. 3 credits. Prerequisites: Child Growth and Development, or Psychology of Adolescence; Junior and Senior education majors and minors. The identification, characteristics and personality factors of the gifted; the teacher's role and various organizational patterns; innovative procedures and techniques to nurture creativity.

Ed 420 THE CHILD WITH LEARNING PROBLEMS IN THE CLASSROOM. Cat. 1. 3 credits. Prerequisites: General Psychology I, and Child Growth and Development. Coordinates the services of Child Study, Special Education with resources offered at Worcester State College; the first half of the course will stress the means by which children are classified for remedial assistance, what remedial help is, and what it entails; thereafter the student is assigned to a child who has been diagnosed as having either emotional or learning problems; the student works in conjunction with the classroom teacher, the school psychologist, the learning disabilities counselor, and the college professor.

Ed 425 CREATIVE THOUGHT AND MINORITY EXPERIENCE. Cat. 1. 3 credits. Prerequisite: Ed 315, or consent of Instructor. Provides opportunities for students to discover, explore, evaluate, appreciate and collate examples and illustrations of creative expression in verbal and nonverbal forms as they are related to the minority experience in America.

Ed 430 EDUCATING EXCEPTIONAL CHILDREN IN THE CLASSROOM. Cat. 1. 3 credits. Prerequisite: Ed 500. Discrepancies in each area of deviation; organization of an instructional program which conforms with the pupil's abilities and inabilities.

Ed 435 DIAGNOSTIC AND REMEDIAL TECHNIQUES IN READING FOR THE REGULAR CLASSROOM. Cat. 1. 3 credits. Prerequisites: Ed 200 and Ed 500. Evaluation instruments and procedures; techniques for removing deficits;tutoring a disabled reader(s); writing a case report.

Ed 440 INDEPENDENT RESEARCH IN ELEMENTARY EDUCATION. Cat. 1. 3 credits. Prerequisite: Upperclassmen. For the student who wishes to pursue independent study in a specialized area of education; a greater understanding and appreciation of education should result from this study in depth; faculty members from other disciplines may be called in to counsel the student in resources and approaches.

Ed 445 THEORETICAL AND PRACTICAL FOUNDATIONS OF THE OPEN CLASSROOM. Cat. 1. 3 credits. Prerequisite: Ed 500, or tutoring experience. Theoretical and practical aspects of the open classroom.

Ed 450 COMMUNITY RESOURCES FOR CHILDREN IN THE ELEMENTARY SCHOOL. Cat. 1. 3 credits. Prerequisite: Upperclassmen. Primarily for elementary teachers to survey programs and resources available in the community, the state, and at national levels; social and family services; health, medical, and mental health facilities; recreational and leisure time services; consideration of methods of using these services and resources; consideration of new concepts in health care and juvenile programs; field experience.

Ed 500 STUDENT TEACHING IN THE ELEMENTARY SCHOOL.
Ed 501 (Kindergarten through Grade 6). Cat. 1. 6 credits. Prerequisite: Completion of required education courses. Actual teaching in schools of Worcester and vicinity; principles, techniques and responsibility for planning, executing, and evaluating teaching-learning.

## DEPARTMENT OF SECONDARY EDUCATION

The basic intent of a minor in secondary education is to adequately prepare students to become properly trained and qualified for certification as teachers in secondary schools. Teacher certification requirements vary from state to state. The two required courses in secondary education plus student teaching meet the minimum education course requirements for certification in Massachusetts. However, we feel a broader knowledge of the teaching environment is needed to meet the multiple demands in the teaching field. Therefore, a

minimum of 18 credit hours in education is required for a minor in secondary education. Student teaching credits are not to be included in the 18 semester hour minor. This course is offered to meet certification requirements.

## Cooperating Demonstration Schools and Faculty

Chandler Street Junior High School – Mr. John S. Laws, Principal; Miss Doris M. Joyce, English; Mr. James J. Lyons, Social Studies; and Mr. Frank L. Warren, Mathematics.

Doherty Memorial High School – Mr. John F. O'Connor, Principal; Mr. Everett W. Moir, Jr., Biology; Miss Helen A. Friel, French; and Mr. Richard P. Donohue, History.

## Requirements for a Minor in Secondary Education

Eighteen hours credit are required to earn a minor in secondary education. The required courses must be supplemented by elective courses *exclusive* of student teaching. Two courses required of all secondary education minors are: Principles and Curriculum of Secondary Education, and Teaching Methods and Skills (in content major). Student teaching may be taken as an elective beyond the 18 semester hours required for a minor in secondary education. Students must take the two required courses prior to student teaching, and English majors must also take Teaching of Reading in Secondary Schools prior to student teaching.

Approved Elective Courses – History & Philosophy of Education, Education and Existential Philosophy, Educational Measurement & Evaluation, Principles of Guidance, Education of the Gifted, Urban Education, Education and Race Relations, Social Action Education Practicum, Teaching for Creativity, Teacher Aides, Educational Psychology, Orientation to Secondary Education (Sophomores only), Teaching of Reading in Secondary Schools, Diagnostic and Remedial Techniques in Secondary Reading, Student Teaching, Seminar in Secondary Education, Independent Study in Education, Preparation of Inexpensive Instructional Media, Introduction to Screen Education (For course description see Media Department), Psychology of Adolescence (For course description see Psychology Department).

Student teaching may be chosen as an elective. The Director of Professional Experiences will submit a tentative listing of student teachers to the chairmen of the departments of the academic majors for approval prior to student teaching assignment.

## Recommended Program for Secondary Education Minors (B.A. / B.S.)

*Important Note:* Students planning to minor in secondary education should consult their subject major Advisors for recommendation for placement of education courses. The education electives may generally be taken in any semester of any year if prerequisites are met. However, the student is cautioned to plan his first semester Senior year carefully. He must elect a minimum of two approved elected courses (see above) from those offered on a half-semester basis to complement the half-semester of student teaching.

### SOPHOMORES

| Fall Semester | Spring Semester |
|---|---|
| | Orientation to Secondary Education |

### JUNIORS

| Fall Semester | Spring Semester |
|---|---|
| One approved secondary education elective | Principles and Curriculum of Secondary Education |
| or | Teaching Methods and Skills (in content major) |
| Teaching of Reading in the Secondary Schools (for English majors) | One secondary education approved elective |

### SENIORS

| Fall Semester | Spring Semester |
|---|---|
| Student Teaching | |
| Two or three approved secondary education electives | |

## *COURSE DESCRIPTIONS*

Ed 125 ORIENTATION TO SECONDARY EDUCATION. Cat. 1. 3 hours. Prerequisite: Open to Sophomores only. Experience in schools, observation, participation in junior-senior high school; investigation of alternative, free, innovative schools; seminar style class meetings.

Ed 235 TEACHER AIDES. Cat. 1. 3 hours. Prerequisites: Orientation to Secondary Education or approval of Professor. A seminar and practicum in secondary education designed to provide a gradual entry to teaching; trains students in tutoring skills, small group instruction skills and human relations and self awareness; practicum gives the student the chance to exercise the skills in a public school; tasks they perform — working with individual students, working with small groups, locating and ordering AV material, organizing library resources, teaching selected aspects of a lesson with the advice and counsel of the cooperating teacher.

Ed 245 246 247 EDUCATIONAL PSYCHOLOGY (Full semester). Cat. 1. 3 hours. Prerequisite: General Psychology I. Learning and developmental processes, motivation, retention, relationships of intelligence and achievement, personality, emotional aspects of learning.

Ed 246 is taken in the first half of that semester in which student teaching is taken during the second half. Ed 247 is taken in the second half of that semester in which student teaching is taken during the first half.

Ed 280 281 282 HISTORY AND PHILOSOPHY OF EDUCATION (Full semester). Cat. 1. 3 hours. Prerequisite: None. Contemporary problems of education in relation to selected ancient, medieval, modern philosophers of education.

Ed 281 is taken in the first half of that semester in which student teaching is taken during the second half. Ed 282 is taken in the second half of that semester in which student teaching is taken during the first half.

Ed 285 286 287 EDUCATIONAL MEASUREMENT AND EVALUATION (Full semester). Cat. 1. 3 hours. Prerequisite: None. Behavioral objectives, test construction, techniques of student evaluation and grading, standardized testing, statistics; current issues in measurement.

Ed 286 is taken in the first half of that semester in which student teaching is taken during the second half. Ed 287 is taken in the second half of that semester in which student teaching is taken during the first half.

Ed 290 291 292 PRINCIPLES OF GUIDANCE. (Full Semester). Cat. 1. 3 hours. Prerequisite: Juniors and Seniors only; open only to secondary education minors. Considers role of guidance and counseling in the school; teacher's responsibilities as a functioning member of the guidance staff.

Ed 291 is taken in the first half of that semester in which student teaching is taken during the second half. Ed 292 is taken in the second half of that semester in which student teaching is taken during the first half.

Ed 295 296 297 TEACHING FOR CREATIVITY (Full semester). Cat. 1. 3 hours. Prerequisite: None. Deals with varying definitions of creativity and current measures of this construct; emphasis on student projects presented to class as simulated learning experiences; prospective teacher given practice in techniques, i.e., brainstorming, role playing, etc., useful in creative learning experiences.

Ed 296 is taken in the first half of that semester in which student teaching is taken during the second half. Ed 297 is taken in the second half of that semester in which student teaching is taken during the first half.

Ed 300 PRINCIPLES AND CURRICULUM OF SECONDARY EDUCATION. Cat. 1. 3 hours. Prerequisite: Open to Juniors and Seniors; prerequisite for student teaching; required for secondary education minors. Goals, curriculum, management, school organization; pupil personnel, teaching techniques, contemporary issues.

Ed 310 URBAN EDUCATION. Cat. 1. 3 hours. Prerequisite: Open to upperclassmen, or consent of Instructor. Development of understanding of the social, psychological and educational problems of the culturally different; strategies and techniques for teaching in the inner-city; practicum.

Ed 315 EDUCATION AND RACE RELATIONS. Cat. 1. 3 hours. Prerequisite: Hi 111 and Hi 112 and consent of Instructor. Education in the promotion of interracial understanding; study of Black American and American Indian; contribution to social, intellectual history and contemporary affairs; appreciation and contributions of the culturally different.

Ed 320 TEACHING OF READING IN THE SECONDARY SCHOOLS. Cat. 1. 3 hours. Prerequisite: Open only to Juniors and Seniors; required of all English majors minoring in secondary education. Fundamentals of developmental and corrective reading at secondary school level; reading and study skills in content subjects.

Ed 327 EDUCATION AND EXISTENTIAL PHILOSOPHY. Cat.1. 3 hours. Prerequisites: Ed 280, 281, or 282. Theistic, atheistic and phenomenological view of existence in relation to contemporary problems of education.

Ed 330 TEACHING METHODS AND SKILLS IN BIOLOGY. Cat. 1. 3 hours. Prerequisite: Required of secondary education minors majoring in biology; limited to Juniors; prerequisite for student teaching. Philosophy, theory, and practice of biological science teaching in the secondary school; opportunity to develop both theoretical insight and practical knowledge and skills required in teaching of biology.

Ed 333 TEACHING METHODS AND SKILLS IN ENGLISH. Cat. 1. 3 hours. Prerequisite: Required of secondary education minors majoring in English; limited to Juniors; prerequisite for student teaching. Small group discussion, improvisation, writing workshop, and more traditional methods for developing students' speaking, listening, writing, reading, and thinking skills; ideas for student-centered assignments based on psychological development and individual experience.

Ed 335 TEACHING METHODS AND SKILLS IN FRENCH. Cat. 1. 3 hours. Prerequisite: Required of secondary education minors majoring in French; limited to Juniors; prerequisite for student teaching. History of modern language education in the United States; current methods of teaching French to include audio-lingual and cognitive approaches; consideration of unit instruction, textbooks and tests; observation of secondary school French classes.

Ed 345 TEACHING METHODS AND SKILLS IN GEOGRAPHY. Cat. 1. 3 hours. Prerequisite: Required of secondary education minors majoring in geography; limited to Juniors;

prerequisite for student teaching. Develop knowledge and skils for effective teaching of geography at the secondary school level; utilization of teaching aids, materials and community resources; participation in planning, developing, and presentation of micro-lesson in teaching geography.

Ed 380 TEACHING METHODS AND SKILLS IN HISTORY. Cat. 1. 3 hours. Prerequisite: Required of secondary education minors majoring in history; limited to Juniors; prerequisite for student teaching. Develop knowledge and skills for effective teaching of history; special emphasis placed on inquiry approach to teaching history; demonstration classes and micro-teaching experiences develop full perspective in this area.

Ed 383 TEACHING METHODS AND SKILLS IN MATHEMATICS. Cat. 1. 3 hours. Prerequisite: Required of secondary education minors majoring in mathematics; limited to Juniors; prerequisite for student teaching. Teaching of junior, senior high school mathematics concepts; observations, reports of demonstration classes, tutoring, micro-teaching; aids, lesson plans, reading skills in mathematics teaching.

Ed 388 TEACHING METHODS AND SKILLS IN PHYSICAL SCIENCES. Cat. 1. 3 hours. Prerequisite: Required of secondary education minors majoring in physical sciences; limited to Juniors; prerequisite for student teaching. Instruction in secondary school physical science teaching; overview organization and presentation of subject matter, equipment and techniques; trends of science in secondary schools.

Ed 390 TEACHING METHODS AND SKILLS IN SOCIAL STUDIES. Cat. 1. 3 hours. Prerequisite: Required of secondary education minors majoring in economics, psychology, sociology; prerequisite for student teaching. Development of teaching skills based on Hunt and Metcalf's reflective method; theory and practice of teaching concepts, generalizations and values in economics, psychology, and sociology.

Ed 393 TEACHING METHODS AND SKILLS IN SPANISH. Cat. 1. 3 hours. Prerequisite: Required of secondary education minors majoring in Spanish; limited to Juniors; prerequisite for student teaching. History of modern language education in the United States; current methods of teaching Spanish to include audio-lingual and cognitive approaches; consideration of units in linguistics and cultural material; observation of secondary school Spanish classes, English as a second language, and bi-lingual programs.

Ed 395 SOCIAL ACTION EDUCATION PRACTICUM. Cat. 1. 3 hours. Prerequisite: Upperclassmen. Work study program designed to provide students with an opportunity to work in different social and educational agencies under supervision.

Ed 400 401 STUDENT TEACHING. Cat. 1. 6 hours. Prerequisites: Ed 300; course in teaching Methods and Skills (in content major); open only to Seniors during first semester on quarter basis. Teaching in secondary schools under supervision of cooperating teachers and college supervisors.

Ed 405 SEMINAR IN SECONDARY EDUCATION. Cat. 1. 3 hours. Prerequisites: Ed 300 and 400, 401. Analysis and evaluation of teaching experience; job market and graduate school possibilities.

Ed 415 EDUCATION OF THE GIFTED. Cat. 1. 3 hours. Prerequisites: Ps 190, or Ps 171 and 172; open to Junior and Senior education majors and minors. Identification, characteristics and personality factors of the gifted; the teacher's role and various organizational patterns; innovative procedures and techniques to nurture creativity.

Ed 455 DIAGNOSTIC AND REMEDIAL TECHNIQUES IN SECONDARY READING. Cat. 1. 3 hours. Prerequisites: Ed 320; only to Seniors. Symptoms and causes of reading disabilities, formal and informal reading tests; remedial principles and techniques; students may work with pupils at junior, senior high school level with reading difficulties.

Ed 490 INDEPENDENT STUDY IN EDUCATION. Cat. 1. 1-3 hours. Prerequisite: Open only to Seniors with secondary education minor. Execute an original project or research study under contract with secondary education Advisor.

## DEPARTMENT OF ENGLISH

The English Department offers a major leading to either a B.A. or B.S. degree. If this major is combined with a minor in secondary education, the graduate will be qualified to teach English at the secondary level; a major without an education minor may prepare for graduate school or for a career in the communication arts or in business. Course offerings in the department aim to help the student, whether or not he is an English major, to appreciate and understand great works of literature as well as to write effectively. The latter is specifically stressed in writing courses but also figures in most literature courses through written assignments and analysis of style. The literature courses, comprising a majority of the departmental offerings, present a variety of approaches: panoramic surveys, period and genre studies, intensive study of a single author, and literary criticism. Comparative literature courses provide an acquaintance with masterpieces of other languages, read in translation.

Students may elect to minor in English. It is recommended that the English minor take a minimum of 18 semester hours in English, including Survey of American Literature I or II, and Survey of English Literature.

## English Major Requirements

English majors are required to take at least 36 semester hours in English exclusive of En 101. Required courses are: Survey of American Literature (En 110 *or* 111), Survey of English Literature (En 120 *and* En 121), and Shakespeare I (En 420). An English major should maintain a 2.5 quality point average in English.

## Recommended Program for English Majors (B.A. / B.S.)

### FRESHMEN

**Fall Semester**

English Composition or 100's course

**Spring Semester**

Survey of American Literature I & II

### SOPHOMORES

**Fall Semester**

English Literature I
English Elective (200 series)

**Spring Semester**

English Literature II
English Elective (200 series)

### JUNIORS

**Fall Semester**

Shakespeare I
English Electives (200 series and above)

**Spring Semester**

English Electives (200 series and above)

### SENIORS

English electives and the remainder of the program including minor requirements and choice of electives should be planned by the student in consultation with his Faculty Advisor. Depending on the approach or career which each student has in mind, electives in English should be chosen carefully. Advisors maintain lists of suggested courses should a student be interested in graduate school preparation, secondary school teaching preparation, elementary school teaching preparation, the liberal arts degree, creative writing, etc.

## Recommended Program for English Minors

In addition to English Composition, recommended courses are the following: Survey of American Literature I or II, Survey of English Literature I & II, three English electives.

## *Suggested Courses for Students With a Major in Elementary Education and Concentrating in English*

Introduction to Poetry
Mythology
Structure of Modern English
Science Fiction
Short Story
Contemporary Literature
Afro-American Literature
Existential Adventure
Modern Drama
History of the English Language
Shakespeare I
Survey of American Literature I
Survey of American Literature II
Survey of English Literature I
Survey of English Literature II
Introduction to Drama
Literature of Social Change
Novelette

Elementary majors are urged to contact their Advisor in selecting English electives for their concentration in English.

## Explanation of Course Numbering in English

**En 100-199** — Introduction and distribution courses. Offerings of general interest. No prerequisites.

**En 200-299** — Period surveys — English, American and Continental. Considered basic background for English majors but open to all who meet prerequisites where specified.

**En 300-399** — Courses in writing skills, language arts and criticism. Practical and theoretical mastery of the tools of literature.

**En 400-499** — Advanced courses dealing with major figures and specialized periods.

**En 500-600** — Courses with a specialized methodology. Seminars, special topics, symposia, colloquia, interdisciplinary studies, independent study.

## *COURSE DESCRIPTIONS*

En 101 ENGLISH COMPOSITION. Cat. 1. 3 hrs. Prerequisites: none. Review of English mechanics and writing principles; emphasis will be placed on writing; rhetorical analysis of selected readings; instruction in the techniques of research and in the writing of a research paper; required of all Freshmen.

En 110 SURVEY OF AMERICAN LITERATURE I. Cat. 1. 3 hrs. Prerequisites: none.

En 111 SURVEY OF AMERICAN LITERATURE II. Cat. 1. 3 hrs. Prerequisites: none.

En 110 — American literature up to the Civil War; colonial and federal periods and transcendentalists.
En 111 — continuation of Survey of American Literature I; American Literature after the Civil War; naturalism, and realism.

En 120 SURVEY OF ENGLISH LITERATURE I. Cat. 1. 3 hrs. Prerequisites: none.

En 121 SURVEY OF ENGLISH LITERATURE II. Cat. 1. 3 hrs. Prerequisites: none.

En 120 — the development of English literature from the beginnings to 1798; required of all English majors.
En 121 — continuation of Survey of English Literature I; the development of English literature from 1798 to the present; required of all English majors.

En 140 INTRODUCTION TO POETRY. Cat. 1. 3 hrs. Prerequisites: none. Technical aspects of poetry, such as figures of speech, meter, rhyme, imagery, and the symbol; types of poetry, including the sonnet, the pastoral, the mock-heroic, and the ode; examples range from the Elizabethans to the moderns; short writing assignments required.

En 145 INTRODUCTION TO DRAMA. Cat. 1. 3 hrs. Prerequisites: none. Theories and development of tragedy, comedy, and tragic-comedy; drama from Sophocles to Eugene O'Neil as illustrations of these and the related genres of melodrama and farce.

En 150 THE SHORT STORY. Cat. 1. 3 hrs. Prerequisites: none. The short story form from its origins in the medieval tale to modern short stories which are psychological probings of character; attention to changes in structure and to Poe's theory of the short story; selection from Conrad, Mansfield, Joyce, and others.

En 152 THE NOVELETTE. Cat. 1. 3 hrs. Prerequisites: none. The major practitioners of the novelette over the past century: Conrad, Mann, Kafka, Dostoyevsky, and others.

En 154 CONTEMPORARY LITERATURE. Cat. 1. 3 hrs. Prerequisites: none. Major literary trends of the twentieth century.

En 156 MYTHOLOGY. Cat. 1. 3 hrs. Prerequisites: none. Myths and legends of ancient Greece and Rome which form a part of the classical tradition in English literature; intensive reading of *The Theogony*, *The Iliad*, *The Odyssey*, *The Aeneid*, and selections from *Metamorphoses*.

En 158 SCIENCE FICTION. Cat. 3. 3 hrs. Prerequisites: none. The nature and function of nineteenth and twentieth century science fiction literature: H.G. Wells, Jules Verne, Isaac Asimov, Ray Bradbury, and others.

En 160 THE LITERATURE OF THE BIBLE. Cat. 1. 3 hrs. Prerequisites: none. Biblical writings in the light of the time and events which produced them; the Old Testament, the Founding of the Monarchy, the Yahwist Account, the Prophets of the ninth century, Wisdom Literature, the Apocalyptical Literature in the New Testament.

En 164 AFRO-AMERICAN LITERATURE. Cat. 1. 3 hrs. Prerequisites: none. Black literature considered chronologically in the total context of American culture; analysis of Black poetry, drama and fiction; contemporary non-fictional writing of the Black community considered as an expression of the dynamic social changes occurring in that community.

En 166 LITERATURE AND SOCIAL CHANGE. Cat. 3. 3 hrs. Prerequisites: none. Examines the role of literature in society as a means of protesting social abuses and effecting social change; works in various genres, periods, and traditions by such writers as Swift, Blake, Shaw, Camus, Brecht, and Steinbeck studied in terms of the author's social concern and impact; an attempt to measure the actual effect on society of at least one writer's work.

En 170 THE EXISTENTIAL ADVENTURE: LITERATURE OF SELF DISCOVERY. Cat. 3. 3 hrs. Prerequisites: none. Analysis of several literary works which deal with the experience of self-discovery and what various authors have tried to say about the nature of the self; Conrad, Hesse, Dostoyevsky, Hemingway and others; includes, unless otherwise indicated, the practice of the Eastern discipline for achieving self-discovery, Yoga.

En 202 CLASSICS I: ANCIENT. Cat. 1. 3 hrs. Prerequisites: none. Greek and Roman masterpieces in translation, including Homer, Greek tragedy, Plato, and Vergil, as well as selections from the Bible.

En 204 CLASSICS II: RENAISSANCE THROUGH MODERN. Cat. 2. 3 hrs. Prerequisites: none. World masterpieces of the Renaissance through the modern period, with emphasis on continental works in translation.

En 206 MEDIEVAL ENGLISH LITERATURE. Cat. 1. 3 hrs. Prerequisite: En 120. English literature from the twelfth to the fifteenth centuries with a focus on lyric poetry, ballads, the mystery and morality plays, *Piers Plowman*, and the work of the Pearl Poet and Sir Thomas Malory.

En 208 MEDIEVAL COMPARATIVE LITERATURE. Cat. 1. 3 hrs. Prerequisites: none. Ideas of medieval Christianity, courtly love, and chivalric honor as they appear in *The Song of Roland*, Arthurian romances, the Grail legend, the story of Tristan and Iseult, *The Romance of the Rose*, Troubadour lyrics, and Dante's *Divine Comedy*.

En 210 THE RENAISSANCE. Cat. 1. 3 hrs. Prerequisite: En 120. A study of the chief non-dramatic literature of Tudor England; emphasis on the writings of More, Wyatt, Sidney, and Spenser, and on the earlier work of Shakespeare, Donne, and Bacon.

En 214 SEVENTEENTH CENTURY LITERATURE. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. Prose and poetry of this era with special attention to the major works of Jonson and Donne.

En 220 THE AGE OF POPE AND SWIFT. Cat. 1. 3 hrs. Prerequisite: En 120. English literature of the early eighteenth century in terms of its social, religious, and philosophical milieu; the nature of neo-classicism, the strategies of Augustan satire, and the emergence of the novel.

En 222 THE AGE OF JOHNSON. Cat. 1. 3 hrs. Prerequisite: En 120. Johnson and Boswell are the central figures; also Goldsmith, Burke, Sheridan, Gibbon, Reynolds, and others of the second half of eighteenth century England.

En 226 THE ENGLISH NOVEL OF THE EIGHTEENTH CENTURY. Cat. 1. 3 hrs. Prerequisite: Completion of the Freshman year. Purpose, range, and developments in the novel of the eighteenth century; Defoe, Richardson, Fielding, Smollett, Sterne, and others.

En 228 THE ENGLISH NOVEL OF THE NINETEENTH CENTURY. Cat. 1. 3 hrs. Prerequisite: Completion of the Freshman year. Representative nineteenth century novelists: Austen, Bronte, Dickens, Thackeray, Eliot, Hardy, Conrad, and others.

En 232 ROMANTIC LITERATURE. Cat. 1. 3 hrs. Prerequisites: En 120 and 121. Poetry and prose with special emphasis on the poetry of Wordsworth, Coleridge, Shelley, Byron, and Keats; attention to modern critical views as well as contemporary attitudes.

En 240 VICTORIAN POETRY. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. Emphasis on Tennyson, Browning, Arnold, and Swinburne as thinkers and stylists; readings in Rossetti, Hopkins, Houseman, Hardy, and others; special attention to the development of the modern mind and its struggle with Romanticism.

En 246 VICTORIAN ESSAYISTS. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. Analysis of the essays of Macauley, Carlyle, Newman, Darwin, Huxley, Mill, Arnold, Ruskin, Pater, and Stevenson; consideration of the classical principles of rhetoric, as well as the innovation in ideals, political principles, religious conceptions, scientific theories, and cultural changes recorded in these essays as they illuminate both the Victorian and the modern world.

En 248 ENGLISH HUMORISTS OF THE NINETEENTH CENTURY. Cat. 3. 3 hrs. Prerequisites: none. Form and function of English humor and wit in the nineteenth century; The Regency wits, Byron, Lamb, Dickens, Thackeray, Carroll, Wilde, Gilbert and Sullivan, Shaw, and others.

En 250 CONTINENTAL NOVELISTS I. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. Major nineteenth century European novelists: Stendahl, Balzac, Tolstoy, Flaubert, Hugo, Hoffman, Dostoyevsky, and others.

En 252 CONTINENTAL NOVELISTS II. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. Major twentieth century European novelists: Mann, Kafka, Remarque, Gide, Proust, Camus, Sartre, and others.

En 260 MAJOR RUSSIAN AUTHORS. Cat. 2. 3 hrs. Prerequisites: none. A critical analysis of the principal writings of the Russian masters of drama, fiction, and poetry; emphasis on the works of Tolstoy, Dostoyevsky, Chekov, Gogol, Pushkin, and Turgenev; attention given to the cultural and historical milieu in which these works were produced.

En 270 MODERN DRAMA. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. The theories and development of classicism, realism, naturalism, expressionism, folk drama, Brecht's epic theatre of alienation, theatre of the absurd, and Artaud's total theatre of cruelty; representative plays from Aeschylus to Albee for reading and analysis.

En 272 CONTEMPORARY DRAMA. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. A survey of the more significant plays of the contemporary theatre; concentration on the dramatic works and theories of Albee, Artaud, Beckett, Brook,Genet, Grotowski, Ionesco, Miller, Williams, and Pinter.

En 280 MODERN POETRY. Cat. 1. 3 hrs. Prerequisites: En 120 and En 121. Close analysis of the development of British and American poetry from the late nineteenth century to World War II.

En 282 CONTEMPORARY POETRY. Cat. 1. 3 hrs. Prerequisite: none. Concentrates on poets whose major work has occurred after World War II; special attention to poets presently writing and publishing.

En 286 CONTEMPORARY NOVEL. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. American and English novels of the past thirty years, with emphasis on living novelists; selections representing a wide variety of themes and styles.

En 290 THE AMERICAN NOVEL I. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. The American novel from its origin to 1890; Brown, Cooper, Melville, Hawthorne, and others.

En 294 THE AMERICAN NOVEL II. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. The American novel from 1890 to World War II; Crane, Wolfe, Dreiser, Anderson, Hemingway, Steinbeck, and others.

En 305 ADVANCED COMPOSITION: CRITICAL WRITING. Cat. 1. 3 hrs. Prerequisite: Consent of Instructor. Thorough discussion of the traditional descriptive grammar; assigned reading in the more recent structural and generative linguistic systems; series of short written themes on types of literature and a major paper discussing some aspect of language or literature.

En 310 CREATIVE WRITING: PROSE I. Cat. 1. 3 hrs. Prerequisite: Consent of Instructor. An attempt to develop the student's writing ability and critical sense; work of the students and of authors of established reputation will be read, analyzed, and discussed; laboratory method used as needed.

En 312 CREATIVE WRITING: PROSE II. Cat. 1. 3 hrs. Prerequisite: Consent of Instructor. A continuation of En 310; offers instruction in composing various types of prose fiction.

En 320 CREATIVE WRITING: POETRY I. Cat. 1. 3 hrs. Prerequisite: Consent of Instructor. Developing the student's skill in the creation of poetry; attention to contemporary trends in American poetry along with discussion of the major poets of the recent past.

En 322 CREATIVE WRITING: POETRY II. Cat. 1. 3 hrs. Prerequisite: Consent of Instructor. Conversation with practicing poets; preparation of a small booklet of poems; En 320 not required.

En 330 INTRODUCTION TO JOURNALISM. Cat. 1. 3 hrs. Prerequisite: Consent of Instructor. The theory and practice of proper journalistic standards, principles, and techniques.

En 350 HISTORY OF LITERARY CRITICISM. Cat. 1. 3 hrs. Prerequisites: En 120 and En 121. An historical introduction to speculation concerning the nature and function of literature; selections from Aristotle to Frye.

En 370 THE HISTORY OF THE ENGLISH LANGUAGE. Cat. 1. 3 hrs. Prerequisites: none. A study of the following: 1) Indo-European languages-the origins of English; 2) Old English-reading, phonology, syntax; 3) Middle English-reading, syntactic change, dialect variations; 4) Modern English-lexicography and grammar; effects of mass media on arrestation and change.

En 375 STRUCTURE OF MODERN ENGLISH. Cat. 1. 3 hrs. Prerequisites: none. An introduction to traditional and linguistic description of modern English.

En 410 CHAUCER. Cat. 1. 3 hrs. Prerequisites: none. A study of the development of Chaucer's versatile art and of his writings as expressive of the later Middle Ages; includes *The Canterbury Tales, The Book of the Duchess, The House of Fame, The Parliament of Fowls, and Troilus and Cressida;* reading of Chaucerian English will be stressed (recordings used).

En 420 SHAKESPEARE I. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. Major plays; required of all English majors.

En 425 SHAKESPEARE II. Cat. 2. 3 hrs. Prerequisite: Shakespeare I. A continuation of En 420 which will include the sonnets and less familiar plays.

En 428 JACOBEAN DRAMA. Cat. 1. 3 hrs. Prerequisite: En 450. A study of plays by the contemporaries of Shakespeare: Beaumont, Chapman, Fletcher, Ford, Jonson, Massinger, and Webster.

En 430 MILTON. Cat. 1. 3 hrs. Prerequisite: Completion of Freshman year. A study of Milton's work from early poems to *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*; includes some prose pamphlets.

En 445 THE ENGLISH THEATRE: 1660-1780. Cat. 2. 3 hrs. Prerequisite: Completion of Freshman year. A survey of plays of the Restoration period and the eighteenth century; genres of comedy and tragedy with some consideration to politics, manners, and society.

En 475 THE IRISH LITERARY REVIVAL. Cat. 1. 3 hrs. Prerequisites: En 120 and En 121. The works and writers of the Irish Renaissance; an examination of the origins of the movement as well as the writings of Joyce, Yeats, Synge, O'Casey, Lady Gregory, and others.

En 485 EARLY AMERICAN LITERATURE. Cat. 3. 3 hrs. Prerequisite: En 110. Organized according to literary genres: non-fiction, poetry, fiction, drama, and literary criticism from the colonial beginnings to Washington Irving.

En 522 HEMINGWAY AND O'NEILL. Cat. 3. 3 hrs. Prerequisites: En 111 and consent of Instructor. Seminar devoted to Hemingway's short stories and novels and representative plays of O'Neill.

En 600 INDEPENDENT STUDY IN ENGLISH. Cat. 3. 1-3 hrs. Prerequisites: Consent of department and Instructor. A course-concept enabling the individual student to pursue independent study when it is deemed suitable by the department and when appropriate Instructor is available.

## DEPARTMENT OF FOREIGN LANGUAGES

The Foreign Languages Department offers a major in French and in Spanish. The objectives of the department are to offer programs which develop and enhance one's functional mastery of the listening, speaking, reading, and writing skills of a foreign language. In addition, courses in the appreciation and understanding of the literature and civilization provide other insights. Students majoring in French and in Spanish, with a minor in education, are prepared as prospective language teachers on the junior and senior high school level. Likewise, majors in elementary education may concentrate in Spanish and in French, thus meeting local needs for bi-lingual education. Majors not interested in teaching may prepare for graduate school or for a career in other professions which require foreign language skills, such as sociology, the diplomatic corps, and business and commerce.

### Foreign Language Major — Minor Requirements

Those students planning to major in a foreign language must successfully complete at least 30 semester hours *beyond the beginning level courses.* In order to complete the required number of courses and to elect in proper sequence, the candidate must choose his major concentration as early as possible in his academic career.

Minors are offered in French, Spanish, and German. Eighteen semester hours credit are required for each minor.

All foreign language majors are required to complete six semester hours of study in another foreign language. Because language majors with a competency in more than one foreign language increase their opportunities for teaching positions, it is highly recommended that all prospective language majors select a minor in another foreign language. Please consult with your Advisor.

Through challenge examinations given by the Department of Foreign Languages, a language major or minor may obtain a maximum number of 6 credit hours at the intermediate level only. These six hours would be included as part of the total number of credit hours required for the major in French or Spanish.

## FRENCH

A major in French Shall consist of: two courses (maximum) numbered 100 series – credits may be obtained by examination; three courses (minimum) numbered 200 series; one course (minimum) numbered 300 series; three courses (minimum) numbered 400 series; one to five courses free electives 200 and above. A total 10-14 courses are required.

A minor in French shall consist of: two courses (maximum) numbered 100 series – credits may be obtained by examination; two courses (minimum) numbered 200 series; two courses (minimum) numbered 300, 400, 500 series. A total of 18 semester hours (six courses) are required. Foreign language courses (listed as FI) are not applicable to the minor except beyond the minimum six courses (18 hours).

### Recommended Program for French Majors (B.A. / B.S.)

#### FRESHMAN

| Fall Semester | Spring Semester |
|---|---|
| Fr 110 Intermediate French I | Fr 111 Intermediate French II |
| Sp 101 Fundamental Spanish I | Sp 101 Fundamental Spanish II |
| or | or |
| Gn 101 Beginning German I | Gn 101 Beginning German II |

#### SOPHOMORE

| Fall Semester | Spring Semester |
|---|---|
| Fr 201 Advanced French | Fr 202 Introduction French Phonetics |
| Fr 301 General French Civilization | |

#### JUNIOR

| Fall Semester | Spring Semester |
|---|---|
| Fr 211 Advanced French Conversation | Fr 212 Advanced French Composition |
| Fr 401 Introduction to French Literature | Any French Literature course in the 400 series |
| | Fr 302 Contemporary French Civilization (Methods in French) |

#### SENIOR

| Fall Semester | Spring Semester |
|---|---|
| Practice Teaching | Any French Literature course in the 400 series |

## SPANISH

A major in Spanish shall consist of: Intermediate Spanish I & II (conversational, literary, or journalistic approach); Advanced Spanish Conversation I; Advanced Spanish Composition I & II; Spanish Civilization; Readings in Spanish Literature.

## Recommended Program for Spanish Majors (B.A. / B.S.)

### FRESHMAN

| Fall Semester | Spring Semester |
|---|---|
| Any Intermediate Spanish I | Any Intermediate Spanish II |
| Beginning French I or Beginning German I | Beginning French II or Beginning German II |

### SOPHOMORE

| Fall Semester | Spring Semester |
|---|---|
| Advanced Spanish Composition I | Advanced Spanish Composition II |
| Spanish Conversation I | Advanced Spanish Conversation II |

### JUNIOR

| Fall Semester | Spring Semester |
|---|---|
| Spanish Civilization | Any Spanish Literature |
| Readings in Spanish Literature | (Methods of Teaching Spanish) |

### SENIOR

| Fall Semester | Spring Semester |
|---|---|
| Practice Teaching in Spanish | Any Spanish literature |

Note: *Those not planning to teach may select Spanish course offerings during first semester of the Senior year.*

## GERMAN

A minor is offered in German. Eighteen credits are required for a minor in German. A student should consult his Advisor for requirements.

## *COURSE DESCRIPTIONS*

### French

Fr 101 INTRODUCTION TO FRENCH LANGUAGE CULTURE I. Cat. 1. 3 hrs. Prerequisites: none.

Fr 102 INTRODUCTION TO FRENCH LANGUAGE CULTURE II. Cat. 1. 3 hrs. Prerequisites: none. The fundamentals of written and spoken French correlated with a comparative study of French and Anglo-American culture and civilization; recommended for the humanities distribution requirement.

Fr 103 BEGINNING FRENCH I. Cat. 1. 3 hrs. Prerequisites: none.

Fr 104 BEGINNING FRENCH II. Cat. 1. 3 hrs. Prerequisites: none. Fundamentals of pronunciation, patterns of speech, basic structures by aural-oral method; continued second semester; recommended for those with little or no previous study of French, but who intend to continue to a higher level.

Fr 110 INTERMEDIATE FRENCH I. Cat. 1. 3 hrs. Prerequisite: Fr 102 or Fr 104 or 2 years of high school French.

Fr 111 INTERMEDIATE FRENCH II. Cat. 1. 3 hrs. Prerequisite: Fr 102 or Fr 104 or 2 years of high school French. Review of grammar, verb structure, written, oral drills; selected reading language laboratory.

Fr 114 INTERMEDIATE FRENCH I: READINGS AND TRANSLATION. Cat. 1. 3 hrs. Prerequisites: Fr 101, Fr 104, or 1 year of high school French.

Fr 115 INTERMEDIATE FRENCH II: READINGS AND TRANSLATION. Cat. 1. 3 hrs. Prerequisites: Fr 101, Fr 104, or 1 year of high school French. Alternative intermediate course; recognition of basic forms and structures; acquisition of basic vocabulary for literary, journalistic and technical reading.

Fr 116 INTERMEDIATE FRENCH I: CONVERSATION. Cat. 1. 3 hrs. Prerequisites: Fr 102, Fr 104, or 2 years of high school French.

Fr 117 INTERMEDIATE FRENCH II: CONVERSATION. Cat. 1. 3 hrs. Prerequisites: Fr 102, Fr 104, or 2 years of high school French. Conversational patterns, idioms, dialogues; special vocabularies for travel and occupations; language laboratory.

Fr 201 ADVANCED FRENCH. Cat. 1. 3 hrs. Prerequisites: Any French 110-117 course, or equivalent, or consent of Instructor. Grammatical and semantic analysis of sophisticated French texts; practice in translation and composition; conducted in French.

Fr 202 INTRODUCTION TO FRENCH PHONETICS. Cat. 1. 3 hrs. Prerequisites: Any Fr 110-117 course. Practice in French sound system; language laboratory.

Fr 211 ADVANCED FRENCH CONVERSATION. Cat. 1. 3 hrs. Prerequisite: Fr 201; repeatable once. Complete review of pronunciation for fluency and accuracy; intonation patterns, practical approach to spoken idiom; language laboratory.

Fr 212 ADVANCED FRENCH COMPOSITION. Cat. 1. 3 hrs. Prerequisite: Fr 201; repeatable once. Review of more difficult points of French grammar; advanced work in idioms; stylistic analysis of selected exercises in literary extracts.

Fr 301 GENERAL FRENCH CIVILIZATION. Cat. 1. 3 hrs. Prerequisites: Any Fr 110-117 course. Characteristic aspects of French culture; significant elements of history, geography, social, economic development as essential background to literature and language.

Fr 302 CONTEMPORARY FRENCH CIVILIZATION. Cat. 1. 3 hrs. Prerequisites: Any Fr 110-117 course. Political, social life since 1958; seminar approach.

Fr 401 INTRODUCTION TO FRENCH LITERATURE. Cat. 1. 3 hrs. Prerequisites: Any Fr 110-117 course. Major periods and genres of French literature; writing literary studies and *explications de texte* in French.

Fr 402 MEDIEVAL AND RENAISSANCE FRENCH LITERATURE. Cat. 2. 3 hrs. Prerequisites: Any Fr 110-117 course; Fr 401 recommended. Selections from the epic, theatre, lyric poetry and major prose writers.

Fr 403 FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Cat. 2. 3 hrs. Prerequisites: Any Fr 110-117 course; Fr 401 recommended. Major authors of the classical period with emphasis on Corneille, Moliere and Racine.

Fr 404 EIGHTEENTH CENTURY FRENCH LITERATURE. Cat. 2. 3 hrs. Prerequisites: Any Fr 110-117 course; Fr 401 recommended. Major works — Montesquieu, Voltaire, Diderot, Rousseau plus representative play and novel.

Fr 405 NINETEENTH CENTURY FRENCH LITERATURE. Cat. 2. 3 hrs. Prerequisites: Any Fr 110-117 course; Fr 401 recommended. Major Romantic, Realist and Symbolist authors.

Fr 406 TWENTIETH CENTURY FRENCH LITERATURE. Cat. 1. 3 hrs. Prerequisites: Any Fr 110-117 course; Fr 401 recommended. Major novelists, dramatists and poets from the turn of the century to the present.

Fr 501 SEMINAR IN FRENCH STUDIES. Cat. 3. 3 hrs. Prerequisites: Open to Junior and Senior majors and minors; since topics vary, the course is repeatable. Special topics in French literature, civilization or language.

Fr 502 INDEPENDENT STUDY IN FRENCH. Cat. 3. 3 hrs. Prerequisites: Open to Junior and Senior majors and minors. Independent research in a topic agreed upon between student and Instructor.

## Foreign Languages

Fl 201 APPLIED LINGUISTICS I. Cat. 1. 3 hrs. Prerequisites: Working knowledge of a foreign language (i.e. Intermediate level course).

Fl 202 APPLIED LINGUISTICS II. Cat. 2. 3 hrs. Prerequisites: Fl 201, or En 210, or Ed 450, or Cd 230.

Fl 201 — Introduction to the most useful aspects of linguistic theory for language learning and teaching; phonetics, morphology, syntax.

Fl 202 — The second semester continues with comparison of the phonemic, morphological and syntatic structure of English to selected foreign languages; problems of bilingualism, interference, teaching English to speakers of other languages.

Fl 301 MASTERPIECES OF FRENCH LITERATURE IN TRANSLATION I. Cat. 1. 3 hrs. Prerequisites: Sophomore standing or above.

Fl 302 MASTERPIECES OF FRENCH LITERATURE IN TRANSLATION II. Cat. 1. 3 hrs. Prerequisites: Sophomore standing or above. Selected masterpieces of the drama, fiction, and essay from the Middle Ages to the present.

Fl 303 GERMAN LITERATURE IN TRANSLATION: PROSE OF MANN, KAFKA, HESSE. Cat. 2. 3 hrs. Prerequisite: Completion of Freshman year. Works by authors who have touched upon problems that are disturbingly similar to those of our day; contributions of Musil, Doblin; others are also considered.

Fl 304 GERMAN LITERATURE IN TRANSLATION: THE PROBLEMS OF IDENTITY AND RESPONSIBILITY. Cat. 2. 3 hrs. Prerequisite: Completion of Freshman year. Various types of response to cataclysms of our century; post WW II authors — Grass, Boll, Frisch, et al; offered Spring, 1974.

Fl 400 FOREIGN LANGUAGE INTRA-DEPARTMENTAL SEMINAR. Cat. 1. 3 hrs. Prerequisites: Completion of Freshman year. Presentation of particular theme, genre, period or problem common to Spain, France, Germany; conducted in English by six members of the Department of Foreign Languages.

## German

Gn 101 BEGINNING GERMAN I. Cat. 1. 3 hrs. Prerequisites: none.

Gn 102 BEGINNING GERMAN II. Cat. 1. 3 hrs. Prerequisites: none. The German language — its fundamentals of structure, speech patterns, pronunciation, writing, reading, laboratory work.

Gn 110 INTERMEDIATE GERMAN I. Cat. 1. 3 hrs. Prerequisites: Gn 102, or 2 years of high school German.

Gn 111 INTERMEDIATE GERMAN II. Cat. 1. 3 hrs. Prerequisites: Gn 102, or 1 year high school German. Fundamentals of the German language and presentation of more complex, stylistic features; selected readings as introduction to culture, conversation, composition.

Gn 201 GERMAN FOR READING KNOWLEDGE I. Cat. 1. 3 hrs. Prerequisites: Gn 101, or 2 years of high school German.

Gn 202 GERMAN FOR READING KNOWLEDGE II. Cat. 1. 3 hrs. Prerequisites: Gn 101, or 2 years of high school German. Basic grammar, structure of language; introduction to scientific terminology, vocabulary; translation, writings of resumes stressed.

Gn 210 READINGS IN GERMAN LITERATURE I. Cat. 3. 3 hrs. Prerequisites: Gn 110, Gn 111, Gn 201, Gn 202.

Gn 211 READINGS IN GERMAN LITERATURE II. Cat. 3. 3 hrs. Prerequisites: Gn 110, Gn 111, Gn 201, Gn 202. Selected readings from major periods of German literature.

Gn 220 GERMAN CONVERSATION - COMPOSITION. Cat. 1. 3 hrs. Prerequisites: Gn 110, Gn 111. Student's ability to communicate via written, spoken word stressed; facilitates transition to advanced level courses.

Gn 230 GENERAL SURVEY OF GERMAN LITERATURE. Cat. 2. 3 hrs. Prerequisite: Gn 220. Various periods, movements in German literature; representative works of particular era to complement lectures.

Gn 240 SURVEY OF GERMAN DRAMA. Cat. 2. 3 hrs. Prerequisite: Gn 230. Selected readings from Lessing through Brecht; emphasis on Goethe, Schiller, Kleist, Hebbel, Grillparzer, Hauptmann, Brecht.

Gn 250 GERMAN PROSE FICTION. Cat. 1. 3 hrs. Prerequisite: Gn 230. Selected readings from Storm, Stress to present time; emphasis on development of novel, "novelle"; offered Spring, 1974.

Gn 400 ADVANCED STUDY: SPECIAL TOPICS. Cat. 3. 3 hrs. Prerequisite: Departmental recommendation. Special topics in foreign language, literature, civilization, or field work of mutual interest to student and Instructor; offered when warranted.

## Spanish

Sp 101 FUNDAMENTAL SPANISH I. Cat. 1. 3 hrs. Prerequisites: none.

Sp 102 FUNDAMENTAL SPANISH II. Cat. 1. 3 hrs. Prerequisites: none. Basic oral, written proficiency for daily communication; taken as a self-contained unit or serve as basis for further language development; language laboratory.

Sp 110 INTERMEDIATE SPANISH I - CONVERSATIONAL APPROACH. Cat. 1. 3 hrs. Prerequisites: Sp 101, Sp 102, or 2 years of high school Spanish.

Sp 111 INTERMEDIATE SPANISH II - CONVERSATIONAL APPROACH. Cat. 1. 3 hrs. Prerequisites: Sp 101, Sp 102, or 2 years of high school Spanish. Conversational patterns, idioms, dialogues; special vocabularies for travel and occupations; language laboratory.

Sp 112 INTERMEDIATE SPANISH I - LITERARY APPROACH. Cat. 1. 3 hrs. Prerequisites: Sp 101, Sp 102, or 2 years of high school Spanish.

Sp 113 INTERMEDIATE SPANISH II - LITERARY APPROACH. Cat. 1. 3 hrs. Prerequisites: Sp 101, Sp 102, or 2 years of high school Spanish. Reading, translation; intensive grammar review and structure of language; appreciation of literature.

Sp 114 INTERMEDIATE SPANISH I - JOURNALISTIC APPROACH. Cat. 1. 3 hrs. Prerequisites: Sp 101, Sp 102, or 2 years of high school Spanish.

Sp 115 INTERMEDIATE SPANISH II - JOURNALISTIC APPROACH. Cat. 1. 3 hrs. Prerequisites: Sp 101, Sp 102, or 2 years of high school Spanish. Reading interpretation of newspapers, magazines, journals, speeches pertaining to current events.

Sp 201 ADVANCED SPANISH COMPOSITION I. Cat. 1. 3 hrs. Prerequisites: Any Sp 110-115 course.

Sp 202 ADVANCED SPANISH COMPOSITION II. Cat. 1. 3 hrs. Prerequisites: Any Sp 110-115 course. Facility in prose writing, style of selected authors; variety of expression through writing, criticism of weekly compositions; required of Spanish majors.

Sp 210 SPANISH CONVERSATION I. Cat. 1. 3 hrs. Prerequisites: Any Sp 110-115 course. Intensive conversational practice for improving intonation, pronunciation, fluency; review of language usage, introduction to phonetics; language laboratory; recommended for prospective teachers at elementary level in Spanish-speaking areas; required of Spanish majors.

Sp 211 SPANISH CONVERSATION II. Cat. 1. 3 hrs. Prerequisites: Sp 210, any Sp 110-115 course. More advanced oral drill, functional exercises; speed, naturalness of more complex speech patterns; language laboratory; recommended for prospective teachers at elementary level in Spanish- speaking areas.

Sp 220 READINGS IN SPANISH LITERATURE. Cat. 1. 3 hrs. Prerequisites: Any Sp 110-115 course. Selected readings of masterpieces from Middle Ages to present; social, cultural, stylistic features of different periods.

Sp 230 SPANISH CIVILIZATION. Cat. 1. 3 hrs. Prerequisites: Required Spanish majors; any Sp 110-115 course. Cultural contributions through social, political life.

Sp 240 SPANISH-AMERICAN LITERATURE. Cat. 2. 3 hrs. Prerequisites: Sp 201, Sp 202. Representative authors, works from Colonial Period to present; offered first semester.

Sp 250 NINETEENTH CENTURY SPANISH LITERATURE. (Romanticism). Cat. 2. 3 hrs. Prerequisite: Sp 220. Reading, intensive study of poetry, essay, drama of Penninsular Romantic Period, novel, other genres of South-American Romantic Period.

Sp 260 NINETEENTH CENTURY SPANISH LITERATURE. (The Novel). Cat. 2. 3 hrs. Prerequisite: Sp 220. Development of novel; selected works of Valera, Galdos, and other novelists.

Sp 265 LITERATURE OF THE SPANISH RENAISSANCE. Cat. 2. 3 hrs. Prerequisite: Sp 220. Works of the idealistic, realistic literary currents in narrative prose; caballaresque, pastoral, picaresque novels.

Sp 270 CERVANTES. Cat. 2. 3 hrs. Prerequisite: Sp 220. *Quijote;* selected *novelas ejemplares.*

Sp 280 SEVENTEENTH CENTURY DRAMA. Cat. 2. 3 hrs. Prerequisite: Sp 220. Selected works of Lope de Vega, Tirso de Molina, Calderon.

Sp 290 CONTEMPORARY SPANISH LITERATURE. Cat. 1. 3 hrs. Prerequisite: Sp 220. Role of Spain in modern times through literary works of 1898 to present.

Sp 300 MASTERPIECES OF SPANISH LITERATURE OF THE MIDDLE AGES. Cat. 2. 3 hrs. Prerequisite: Sp 220. Literature of Spain in the Middle Ages exemplified by *El poema del Cid, El libro de buen amor.*

Sp 320 THE HISPANIC WORLD TODAY. Cat. 1. 3 hrs. Prerequisites: Intermediate Spanish or consent of Instructor.

Sp 321 THE HISPANIC WORLD TODAY. Cat. 1. 3 hrs. Prerequisites: Intermediate Spanish or consent of Instructor. Social, economic and political institutions; collective assumptions, value systems and customs; profound and accelerated changes, their significance for the future; conducted in Spanish.

Sp 400 ADVANCED STUDY: SPECIAL TOPICS. Cat. 3. 3 hrs. Prerequisite: Departmental recommendation. Special topics in foreign language, literature, civilization or field work of mutual interest to student and Instructor; offered when warranted.

# DEPARTMENT OF GEOGRAPHY AND GEOLOGY

The Department of Geography and Geology offers a number of courses leading to a major in the field of geography for students pursuing the B.A. or B.S. degree. A minor in geography and a "concentration" in geography are also available. These are few courses offered in geology for interested students who may wish to use these courses to meet the natural science requirements in their program of study.

## Geography Major Requirements

A major in geography should elect the following required courses as early as possible in his program: Principles of Physical Geography; Principles of Cultural Geography; Geography of North America; Cartography and Geographic Techniques. In addition to the above required courses, all majors must select at least one advanced course in the physical, cultural and regional groups. At least 30 semester hours of credit in geography are required to complete a major. No more than 45 semester hours will be accepted toward the degree.

## Categories: Geography Courses

Regional Geography

Geography of Europe
Geography of Asia (excluding U.S.S.R.)
Geography of South America
Geography of Middle America
Geography of U.S.S.R.
Geography of Africa
World Regional Geography

Systematic Cultural Geography

Economic Geography
Political Geography
Urban Geography
Geography of Manufacturing
Conservation and Natural Resource Management

Systematic Physical Geography

Hydrology
Physical Geology
Historical Geology
Climatology
Geomorphology
Meteorology
Oceanography

Special Courses in Geography

The Teaching of Geography
Readings and Directed Research

## Recommended Program for Geography and Geology Majors (B.A. / B.S.)

### FRESHMEN

| Fall Semester | Spring Semester |
|---|---|
| Physical Geography | Cultural Geography |
| Physical Science I | Physical Science II |

### SOPHOMORES

| Fall Semester | Spring Semester |
|---|---|
| Economic Geography | Geography of North America |

| JUNIORS | | SENIORS | |
|---|---|---|---|
| Fall Semester | Spring Semester ** | Fall Semester ** | Spring Semester ** |
| Cartography and Geographic Techniques I | Cartography and Geographic Techniques II | Major Elective * | Major Elective * |
| Major Elective * | Major Elective * | Major Elective (optional)* | Major Elective (optional)* |

* *Electives should be selected with thought given to the field of specialization in which the individual student elects to concentrate.*

** *For those students who wish to minor in Secondary Education, an adjustment of this program is necessary. See Secondary Education model in this catalog.*

## Recommended Program for Geography and Geology Minors

Principles of Physical Geography, Principles of Cultural Geography, Geography of North America, any systematic course - physical, any systematic course - cultural, an elective in Geography/Geology.

## *COURSE DESCRIPTIONS*

Ge 101 PRINCIPLES OF PHYSICAL GEOGRAPHY. Cat. 1. 3 hrs. Prerequisites: none. Geographic principles of location; characteristics of landforms, soil, climate, minerals, water, flora and fauna.

Ge 102 PRINCIPLES OF CULTURAL GEOGRAPHY. Cat. 1. 3 hrs. Prerequisites: none. Man-land relationships; settlement patterns, problems related to urbanization, pollution, conservation and patterns of change.

Ge 201 REGIONAL GEOGRAPHY - WESTERN HEMISPHERE. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102. Regional treatment of the political and cultural characteristics of Anglo-American and Latin American realm as they relate to the natural environment.

Ge 202 REGIONAL GEOGRAPHY - EASTERN HEMISPHERE. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102. Analysis of the physical, cultural and economic regions of Asia, Europe, Africa, and Oceania; present-day social and political problems.

Ge 210 GEOGRAPHY OF NORTH AMERICA. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102. Techniques of regional analysis; types of manufacturing, agriculture and trade in the various regions of the continent; types of land use as affected by the physical environment.

Ge 220 GEOLOGY I. Cat. 1. 3 hrs. Prerequisites: none.

Ge 221 GEOLOGY II. Cat. 1. 3 hrs. Prerequisites: Ge 220.

Ge 220 — Introduction to geological science; earth materials, structures, and the processes of erosion; two lectures and a two-hour laboratory per week.

Ge 221 — continuation of Geology I; evolution of the earth's crust, surface features, and life forms through geologic time; emphasis on methods of study; two lectures and a two-hour laboratory per week.

Ge 240 GEOGRAPHY OF AFRICA. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102. Newly emerged nations — older advanced states — problems of cultures, and economics.

Ge 250 HYDROLOGY. Cat. 1. 3 hrs. Prerequisite: Ge 101. Physical aspects of water flow; hydrologic cycle; economic, political and social problems in water resource planning; water pollution and quality control.

Ge 260 GEOGRAPHY OF SOUTH AMERICA. Cat. 2. 3 hrs. Prerequisites: Ge 101, Ge 102. Physical, economic, social and cultural analysis of the individual countries; historical background to present-day development.

Ge 270 GEOGRAPHY OF MIDDLE AMERICA. Cat. 2. 3 hrs. Prerequisites: Ge 101, Ge 102. Present growth and trends in Mexico, Central America and the Caribbean realm as related to the nature of the landscape and cultural characteristics of its people.

Ge 280 GEOGRAPHY OF THE U.S.S.R. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102. Physical environment, differentiations due to regional economics, populations, cultures; problems of a giant in a tripartite power play.

Ge 290 CONSERVATION AND NATURAL RESOURCE MANAGEMENT. Cat. 1. 3 hrs. Prerequisites: none. Problems in resource management; attempt at seeking optimal solutions to problems within the existing framework of physical, social, and economic constraints.

Ge 310 GEOMORPHOLOGY. Cat. 1. 3 hrs. Prerequisite: Ge 220. The earth's surface forms and the processes which produce them.

Ge 315 METEOROLOGY. Cat. 1. 3 hrs. Prerequisite: Ge 101. Weather elements, frontal storms, air mass characteristics, wind movement, temperature, precipitation, and pressure patterns throughout the world; weather instruments; forecasting.

Ge 320 CLIMATOLOGY. Cat. 1. 3 hrs. Prerequisite: Ge 101. Characteristics of the atmosphere; climates of the continents and classification of the world's climates.

Ge 330 GEOGRAPHY OF ASIA. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102. Physical and cultural environmental analysis; rapid changes, developments of recent origin, and problems facing the individual countries.

Ge 340 GEOGRAPHY OF EUROPE. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102. European landscapes, peoples, cultures, economics, problems of selected areas, attempts at unity.

Ge 351 CARTOGRAPHY AND GEOGRAPHIC TECHNIQUES I. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102.

Ge 352 CARTOGRAPHY AND GEOGRAPHIC TECHNIQUES II. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102.
Ge 351 — theory and construction of maps.
Ge 352 — continuation of Cartography and Geographic Techniques I; use of diagrams, charts and maps, and statistical analysis; field observations, planetabling, aerial photographic interpretation and original mapping.

Ge 370 GEOGRAPHY OF MANUFACTURING. Cat. 1. 3 hrs. Prerequisites: Ge 420, Ge 102. A systematic study of the spatial distribution of manufacturing activities; analysis of their locations employing industrial location theory.

Ge 410 POLITICAL GEOGRAPHY. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102. Space structures, growth, problems of a nation-state — modern world political problems — studies of a few selected areas.

Ge 420 ECONOMIC GEOGRAPHY. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102, or consent of Instructor. Geographic factors contributing to the localization of economic activities; distribution, production, and trade.

Ge 430 URBAN GEOGRAPHY. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102, or consent of Instructor. Geographic aspects of origin, growth and development of cities and urbanized areas; factors influencing the location of cities and central places; internal structure, functions, problems and urban planning.

Ge 450 READINGS AND DIRECTED RESEARCH. Cat. 1. 3 hrs. Prerequisites: Ge 101, Ge 102, Ge 210, Ge 351, Ge 352, and consent of the department. Directed study on selected topics; open to Senior majors.

## DEPARTMENT OF HEALTH AND PHYSICAL EDUCATION — MEN

The Physical Education Program offers the student an opportunity to participate in a wide variety of individual and team activities. This program is designed to develop a satisfying level of skill, fitness and comprehensive knowledge of rules and strategy which will meet the immediate and life long recreational needs of the student.

Two semester hours credit is required for graduation. A student is expected to participate in at least six different activities in order to meet this requirement. A student may elect to receive a pass-fail grade rather than a letter grade by informing the Registrar. At the beginning of each new activity, a proficiency test will be given and those students who pass the test will receive credit for that activity. When there are extenuating circumstances, a student may apply for a waiver from the requirement. The department will meet and review all requests and grant waivers when feasible.

The department now offers an opportunity for interested students to minor in physical education. This new minor is coeducational and is in keeping with the trend toward directed leisure time activity in the modern world. Eighteen semester hours of approved courses are required. (See course listing).

### Recommended Program for a Minor in Physical Education

Pe 250-330 Coaching of Team Sports, Pe 320 Physical Education in the Elementary School, Pe 325 Dance in the Elementary School, Pe 310 Creative Movement and Interrelated Arts, Pe 340 Movement Education, Pe 345 Analysis of Motor Learning, Pe 350 Gymnastics in the Schools, Pe 355 Principles of Coaching, Pe 360 Coaching Individual Sports, Pe 365 Intramural Athletics, Pe 370 Fundamentals of Athletic Training, Pe 375 Independent Study in Physical Education, Pe 380 Field Experience in Physical Education, Pe 385, 386, 387 Officiating of Team Sports.

### Men's Activity Courses

Pe 200 SWIMMING
Pe 200 FLAG FOOTBALL
Pe 200 ADVANCED FLAG FOOTBALL
Pe 200 SOCCER
Pe 200 BASKETBALL
Pe 200 ADVANCED BASKETBALL
Pe 200 VOLLEYBALL
Pe 200 SOFTBALL
Pe 200 BADMINTON
Pe 200 CANDLEPIN BOWLING
Pe 200 TEN PIN BOWLING
Pe 200 GOLF
Pe 200 GYMNASTICS
Pe 200 TENNIS
Pe 300 CO-ED FENCING
Pe 300 CO-ED SQUARE DANCING
Pe 300 MODERN DANCE
Pe 300 SENIOR LIFE SAVING
Pe 300 WATER SAFETY INSTRUCTOR

NOTE: Physical Education courses listed beyond this point may not be used to meet the general requirements in physical education.

## COURSE DESCRIPTIONS

Pe 250 COACHING TEAM SPORTS. Cat. 1. 3 hrs. Prerequisites: none. The techniques and strategies of coaching football, basketball and baseball; each sport analyzed in terms of selection of team, conditioning, offensive and defensive patterns and the handling of the team in game situations.

Pe 345 ANALYSIS OF MOTOR LEARNING. Cat. 1. 3 hrs. Prerequisites: none. Comprehensive learning processes involving motor learning, perceptual motor concepts and training and the development and teaching of motor skills; beginning Spring, 1974.

Pe 350 GYMNASTICS. Cat. 1. 2 hrs. Prerequisites: none. Elementary course in gymnastic events; tumbling, floor exercise, balance beam, uneven parallel bars, trampoline, gymnastic hand apparatus.

Pe 355 PRINCIPLES OF COACHING. Cat. 1. 3 hrs. Prerequisites: none. The understanding and skills necessary for a person to coach children in any sport; the values a coach must teach, the relationships the coach must establish between himself and the school; the team, the individual player, the opposing teams and the community will be analyzed.

Pe 360 COACHING INDIVIDUAL SPORTS. Cat. 1. 3 hrs. Prerequisites: none. Techniques and strategies of coaching track and field, swimming and tennis; each sport will be analyzed in terms of conditioning, training programs, selection of events and the handling of the individuals and the team in competition; beginning Spring, 1973.

Pe 365 INTRAMURAL ATHLETICS. Cat. 1. 2 hrs. Prerequisites: none. The planning and implementing of intramurals in schools; tournaments, methods of selecting teams, scheduling, officiating, financing and promoting different activities explored; beginning Fall, 1973.

Pe 370 FUNDAMENTALS OF ATHLETIC TRAINING. Cat. 1. 3 hrs. Prerequisites: none. Basic anatomy, taping, techniques and methods employed in treating athletic injuries; training in the operation of the whirlpool bath, hydrocollator, heat lamp and other equipment used in training rooms.

Pe 390 RECREATIONAL PROGRAMS. Cat. 1. 3 hrs. Prerequisites: none. Various facets of recreational programs and leisure time activities; programs for schools, "Y's", playgrounds, evening centers, camps and parks will be examined along with industrial and commercial programs; beginning Spring, 1974.

# DEPARTMENT OF HEALTH AND PHYSICAL EDUCATION — WOMEN

The Women's Department of Health and Physical Education seeks to create an awareness in the student of the necessity of adjusting her lifestyle to accommodate a concern for physical as well as intellectual well being. The department's objectives are: 1) An understanding of one's basic need to be active for optimum health; 2) An understanding of the development and maintenance of physical capacities through exercise, skills, sports and dance; 3) An opportunity for social interaction through group, team and coeducational activities; 4) An opportunity for classroom teachers to develop supplemental preparation in the area of physical education.

A major in physical education is not available at the present time. A student, however, may elect a program of courses leading to a minor in physical education.

Pe 100 courses are physical education activity courses. The student may elect according to her needs and interests from a variety of group and individual activities.

Physical education activity courses are coeducational courses which may be taken in place of Pe 100 courses.

Pe 100/300 represents a course offered to two separate populations: Women (100), and coeducational (300).

## Recommended Program for a Minor in Physical Education

Pe 250-330 Coaching of Team Sports, Pe 320 Physical Education in the Elementary School, Pe 325 Dance in the Elementary School, Pe 310 Creative Movement and Interrelated Arts, Pe 340 Movement Education, Pe 345 Analysis of Motor Learning, Pe 350 Gymnastics in the Schools, Pe 355 Principles of Coaching, Pe 360 Coaching Individual Sports, Pe 365 Intramural Athletics, Pe 370 Fundamentals of Athletic Training, Pe 375 Independent Study in Physical Education, Pe 380 Field Experience in Physical Education, Pe 385,386, 387 Officiating of Team Sports.

### Women's Activity Courses

Pe 100 ADAPTED PHYSICAL EDUCATION
Pe 101 ARCHERY
Pe 101 BACKPACKING
Pe 101 BADMINTON
Pe 101 BASKETBALL
Pe 101 BODY LANGUAGE
Pe 101 BOWLING
Pe 310 CYCLING
Pe 300 DANCE: MODERN, CREATIVE, FOLK, SQUARE

Pe 300 ELEMENTARY SCHOOL ACTIVITIES
Pe 300 FENCING
Pe 101 FIELD HOCKEY
Pe 111 FLAG FOOTBALL
Pe 101 GOLF
Pe 101 GYMNASTICS
INDEPENDENT STUDY
Pe 315 JOGGING
Pe 300 KARATE
Pe 101 LACROSSE
Pe 101 SAILING
Pe 101 SOFTBALL
Pe 101 SWIMMING: INSTRUCTIONAL,
RECREATIONAL,
SENIOR LIFE-SAVING,
WATER SAFETY INSTRUCTOR,
HANDICAPPED (teaching of)
Pe 318 TEAM HANDBALL
Pe 101 TENNIS
Pe 104 TRACK & FIELD
Pe 101 VOLLEYBALL
Pe 113 YOGA

NOTE: Physical Education courses listed beyond this point may not be used to meet the general requirements in physical education.

## *COURSE DESCRIPTIONS*

Pe 250 COACHING TEAM SPORTS. Cat. 1. 3 hrs. Prerequisites: none. Designed for male students majoring in elementary education with a concentration in H. & P.E.; see Physical Education - Men for course description.

Pe 310 CREATIVE MOVEMENT AND INTERRELATED ARTS. Cat. 1. 3 hrs. Prerequisites: none. Student creativity in all the arts - emphasizing integration through movement and using an elemental approach; movement will be interrelated with music, language arts and visual arts through individual and group experiences in the creative process; elemental themes will focus on — line, space, time, form, color, rhythm, sound and flow.

Pe 320 PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL. Cat. 1. 3 hrs. Prerequisites: none. Meaning and purpose of physical education; physical, social, emotional and intellectual characteristics of children in relation to motor learning; methods and techniques of physical education; planning and evaluating the program; activity areas include physical fitness, games, classroom activities, dance and relaxation for children.

Pe 325 DANCE IN THE ELEMENTARY SCHOOL. Cat. 1. 2 hrs. Prerequisites: none. Rhythmic structure employed in musical composition; the relationship of rhythm to basic dance skills and all motor skills that may be performed to music or rhythm; teaching of square, round, and folk dances presented.

Pe 330 COACHING TEAM SPORTS FOR WOMEN. Cat. 1. 3 hrs. Prerequisites: Pe 355 or consent of department. Techniques and strategies of coaching field hockey, basketball, volleyball, and softball; each sport analyzed in terms of selection of team conditioning, offensive and defensive patterns and the handling of the team in game situations.

Pe 340 MOVEMENT EDUCATION. Cat. 1. 3 hrs. Prerequisites: none. Creative and individualized approach to teaching physical education; incorporating the natural inclinations of children by using the whole body in company with the mind and imagination; selected activities that foster and develop the concepts or elements of movement, i.e., body awareness, space and qualities of movement.

Pe 345 ANALYSIS OF MOTOR LEARNING. Cat. 3. 3 hrs. Prerequisites: none. Comprehensive learning precesses involving motor learning; perceptual motor concepts and training; development and teaching of motor skills.

Pe 350 GYMNASTICS IN THE SCHOOLS. Cat. 1. 2 hrs. Prerequisites: none. Introduction to the broad scope of gymnastic activities at the elementary and secondary school level; opportunities provided for participation in tumbling, floor exercise, and apparatus.

Pe 365 INTRAMURAL ATHLETICS. Cat. 1. 2 hrs. Prerequisites: none. See physical education for men for course description.

Pe 370 RECREATIONAL PROGRAMS. Cat. 1. 3 hrs. Prerequisites: none. See physical education - men for course description.

Pe 375 INDEPENDENT STUDY IN PHYSICAL EDUCATION. Cat. 1. .5-3 hrs. Prerequisite: Consent of department. A course concept offering the student an opportunity to engage in an area of interest of physical education not covered in regular elective course offerings; furthering the pursuit for an in-depth study of an area of special interest and concern; fulfilling the college physical education requirements through off-campus activity on physical education.

Pe 380 FIELD EXPERIENCES IN PHYSICAL EDUCATION. Cat. 1. 2 hrs. Prerequisite: Consent of department. A fifty hour directed experience in organizing and executing either physical education programs at the elementary level or extracurricular programs at any level; an on-campus coordinating seminar will be required.

Pe 385 TECHNIQUES OF OFFICIATING VOLLEYBALL (D.G. N.S. rules). Cat. 3. 1 hr. Prerequisites: none.
Pe 386 TECHNIQUES OF OFFICIATING FIELD HOCKEY. Cat. 3. 1 hr. Prerequisites: none.
Pe 387 TECHNIQUES OF OFFICIATING WOMEN'S BASKETBALL. Cat. 3. 1 hr. Prerequisites: none.

Pe 385, 386, 387 offered to provide students with the opportunity to earn an official's rating; interpretation and the techniques of officiating with opportunities for practice in class and in practice situations; successful completion of courses may result in the attainment of a local board rating.

Pe 500 FIRST AID. Cat. 1. .5 hrs. Prerequisites: none. Standard Red Cross theory and skills of emergency treatment for poisoning, shock, wounds, artificial respiration, and broken bones; accident prevention is main objective of the course; required of all elementary majors.

*Other Courses Possible*

1. Students interested in completing a minor in physical education may take any one of the health education courses towards completion of that minor.
2. Bi 211, 212, Human Anatomy and Physiology. Only applicable towards minor if not taken to fulfill other college requirements. Strongly recommended that courses be taken by any student contemplating graduate work in this area.
3. Students who have completed the four-semester requirement may use any of the activity courses listed (Pe 100 or 300) over and above that completed requirement towards the concentration or minor programs.

## PROGRAM OF HEALTH EDUCATION

The Department of Health and Physical Education currently offers a minor program *for those students who are interested in teaching at the elementary/secondary level. The specific aim of the program is to assist students in gaining an understanding of the need for health education at all school levels.

Any student may elect to minor in health education. Consultation with both his/her major Advisor and a member of the Health and Physical Education Department is strongly recommended in order to tailor a program to meet the individual needs of the student. Eighteen semester hours of credit are generally required.

The following courses offered in the Program of Health Education are recommended for a minor: He 330 Creative Teaching in Health, He 335 Current Issues in Health, He 400 Human Sexuality and Sex Education, He 410 Drugs and Society, He 420 Health and Nutrition, He 430 Group Processing in Health Education.

* *Pending final approval*

*COURSE DESCRIPTIONS*

He 330 **CREATIVE TEACHING IN HEALTH.** Cat. 1. 3 hrs. Prerequisite: He 335. For those interested in teaching health at the elementary/secondary level; focus on the role and responsibilities of the classroom teacher as a major force in the creative teaching-learning environment.

He 335 **CURRENT ISSUES IN HEALTH.** Cat. 1. 3 hrs. Prerequisites: none. Impact of modern-day life on human health; the potential of heart disease, drugs, nutrition, diet and weight control, smoking, daily stress, and how they contribute to or detract from the individual's optimal level of health.

He 400 **HUMAN SEXUALITY AND SEX EDUCATION.** Cat. 1. 3 hrs. Prerequisite: Recommended He 425. Physiological, psychological, sociological, philosophical, and historical background of sexuality; techniques and methods for this subject area in the elementary/secondary school emphasized.

He 410 **DRUGS AND SOCIETY.** Cat. 1. 3 hrs. Prerequisites: none. The effects of drug use, abuse, and misuse; major drugs of the contemporary drug scene given special attention; the possible reasons for drug use and the role of the law in drug abuse examined; open classroom method of instruction used.

He 420 **HEALTH AND NUTRITION.** Cat. 1. 3 hrs. Prerequisites: none. Information regarding basic nutritional requirements and how they contribute to maintenance of good health; study of obesity-diet-exercise, heart disease and diet, health foods and quackery.

He 425 **HUMAN SEXUAL AWARENESS.** Cat. 1. 3 hrs. Prerequisites: none. Focus on sexual awareness and the kinds of sexual attitudes and messages that are conveyed, both verbally and nonverbally, by one to another; emphasis will be placed on examining attitudes and previous learning about sex and sexuality.

He 430 **GROUP PROCESSING IN HEALTH EDUCATION.** Cat. 1. 3 hrs. Prerequisites: none. Development of skill and knowledge of group processes in human relationships; primarily an experiential class in which students can discover potential and worth in every individual and in the ways he feels and learns; content and emphasis varies from year to year; focus on various issues in health education (i.e. drugs, sex, emotional health, living in our environment, nutrition, etc.).

He 435 **INDEPENDENT STUDY IN HEALTH EDUCATION.** Cat. 3. 1-3 hrs. Prerequisites: none. Independent study in health education under the direction of a faculty member in the department.

## DEPARTMENT OF HISTORY and POLITICAL SCIENCE

The Department of History offers a wide variety of courses in the field of American, European, Asian, Latin American and Middle Eastern studies. In addition to the major and minor offered in these areas, a minor in political science is also available. This enables the student to elect courses dealing with national, state, and comparative government, international relations, and related fields.

Effective in September, 1973, the department will offer a pre-legal program and a program in American studies. The American Studies Program will provide the students with internship training in historic restoration or museum service, historic records, management and archival work, and an internship in public service.

The philosophy of the department is to provide the student with extensive course offerings to enable him to cope with a complex and ever-shrinking world. Course work in history and political science can prepare the student for a variety of professional and occupational opportunities. Positions heald by graduates in this field include teachers, librarians, archivists, curators of museums, secretaries of institutions, social workers, journalists, foreign correspondents, military correspondents, civil servants and lawyers.

It is expected that the department will grow in size according to student needs; thus, the motto of the department — "To serve and to enlighten."

## Requirements for History Majors

Effective in September, 1973, history majors, beginning with the Class of 1977, will be required to take the following courses: History of Western Civilization I and II, United States History I and II, two other United States History courses, two courses in European History, two courses in non-European, non-U.S. History (Asia, Latin America, Middle East, Africa) and any other two history courses. A total of 36 semester hours in history is required for a major.

## Recommended Program for History Majors (B.A. / B.S.)

### FRESHMEN

Fall Semester

Hi 103 Western Civilization
Po 101 Principles of Political Science

Spring Semester

Hi 104 Western Civilization
Po 110 American Government

### SOPHOMORES

Fall Semester

Hi 111 U.S. History I
European History course

Spring Semester

Hi 112 U.S. History II
European History course

### JUNIORS

Fall Semester

History electives **
Non-European, non-U.S. history course (Asia, Africa, Latin America, Middle East)

Spring Semester *

History electives **
Non-European, non-U.S. history course (Asia, Africa, Latin America, Middle East)

### SENIORS

Fall Semester *

History electives **
U.S. History elective

Spring Semester

History electives **
U.S. History elective

* *If the student's minor is Secondary Education, these two semesters must be used to meet the minor requirements (see secondary education).*

** *These electives should be selected with the advice of the Faculty Advisor and should depend on the student's goals.*

## Recommended Program for History Minor

Hi 101-102 Western Civilization I & II; Hi 111-112 U.S. History I & II; two history electives.

## A Major in History — American Studies

An Introduction to Career Opportunities in:
- Historic Museums
- Historic Restorations
- Archival Work
- Public Service

Today's rapidly changing society provides many challenging opportunities for professional careers. This program will make students aware of social needs and assist them in selecting and exploring an occupational area of interest. The History — American Studies Program will enable students to prepare for satisfying and rewarding careers in areas of their choice.

A broad and general background of history, political science and related courses will permit students to better understand contemporary social conditions in the content of the American heritage. Students will be encouraged to pursue their individual interests in a very flexible academic program. In their Junior and Senior years History — American Studies majors will have the opportunity for independent study and to engage in off-campus internships.

After individual counseling, students will be able to work as interns in such institutions as historic museums, historic restorations, history libraries, Archives, or in any one of a great variety of agencies in state, county and local government.

For further information contact: Mr. Joseph Scannell or Dr. Francis Walett.

### *COURSE DESCRIPTIONS*

Hi 101 HISTORY OF WESTERN CIVILIZATION I. Cat. 1. 3 hrs. Prerequisites: none.

Hi 102 HISTORY OF WESTERN CIVILIZATION II. Cat. 1. 3 hrs. Prerequisites: none. Important developments in the history of European civilization, from Greece to World War II; history majors must elect Hi 103 and 104.

Hi 103 HISTORY OF WESTERN CIVILIZATION I. Cat. 1. 3 hrs. Prerequisites: none.

Hi 104 HISTORY OF WESTERN CIVILIZATION II. Cat. 1. 3 hrs. Prerequisites: none. Deals with material as Hi 101 and 102 but adds an introduction to the study and writing of history; designed for history majors.

Hi 111 UNITED STATES HISTORY I. Cat. 1. 3 hrs. Prerequisites: none.

Hi 112 UNITED STATES HISTORY II. Cat. 1. 3 hrs. Prerequisites: Hi 111. From colonization to the New Deal; political, social, economic, diplomatic and cultural movements.

Hi 200 COLONIAL HISTORY I. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112.

Hi 201 COLONIAL HISTORY II. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112. European background and reasons for American colonization, intercolonial rivalries, and British colonial policy.

Hi 202 EARLY NATIONAL PERIOD OF THE U.S. — 1783-1829. Cat. 2. 3 hrs. Prerequisites: Hi 111, Hi 112. The war for independence, the confederation, the Federalist and Jeffersonian regimes and the rise of American nationality.

Hi 203 THE AGE OF JACKSON. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112. Political, social, economic and intellectual developments from 1820-1848.

Hi 204 THE CIVIL WAR AND RECONSTRUCTION. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112. Sectionalism, slavery and modern industrial warfare and their impact on the political and racial fabric of America.

Hi 206 POPULISM AND PROGRESSIVISM — 1877 — 1914. Cat. 2. 3 hrs. Prerequisites: Hi 111, Hi 112. America's transition from a developing nation to a world power; immigration, urbanization, industrialization; development of economic and social life.

Hi 207 AMERICAN URBAN HISTORY. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112. The process of urbanization since the 19th century; cultural, social, economic and political aspects of city life.

Hi 208 THE IMMIGRANT IN AMERICAN HISTORY. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112. The process of immigration, the impact of the immigrant on American life and its effect on him.

Hi 209 AFRO-AMERICAN HISTORY. Cat. 3. 3 hrs. Prerequisites: Hi 111, Hi 112. The Black man in American society from slavery to the present; contributions to American life.

Hi 210 PSYCHOLOGICAL FOUNDATIONS OF CURRENT HISTORY. Cat. 1. 3 hrs. Prerequisites: Sophomores, Juniors, and Seniors. An attempt to ascertain certain climates of opinion within which far-reaching decisions were both made and responded to.

Hi 211 HISTORY OF U.S. FOREIGN POLICY I. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112.

Hi 212 HISTORY OF U.S. FOREIGN POLICY II. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112.
Determination and implementation of U.S. foreign policy through detailed historical analysis of significant themes and basic concepts.

Hi 213 TWENTIETH CENTURY U.S. HISTORY. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112. Contemporary American civilization, from America in World War I up to America in the Cold War.

Hi 214 U.S. LABOR HISTORY — 1864 TO THE PRESENT. Cat. 2. 3 hrs. Prerequisites: Hi 111, Hi 112. Survey of labor in the U.S.; analysis of the labor force; ideologies which competed for adherents among the labor population; labor's role in shaping America.

Hi 215 AMERICAN INTELLECTUAL HISTORY. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112. Puritanism, the Enlighten-

ment, Romanticism, Darwinism, Pragmatism, Naturalism, Fundamentalism, the Liberal-Progressive Ethic and the New Left.

Hi 216 ECONOMIC HISTORY OF THE U.S. Cat. 2. 3 hrs. Prerequisites: Hi 111, Hi 112. American economic history from the 17th century to the present; economic problems and policies particularly since World War II.

Hi 217 U.S. SOCIAL HISTORY. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112. Diverse elements of society and culture such as family history, reform, American architecture and the frontier.

Hi 218 U.S. CONSTITUTIONAL HISTORY I. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112.

Hi 219 U.S. CONSTITUTIONAL HISTORY II. Cat. 1. 3 hrs. Prerequisites: Hi 218. The development of American constitutional principles from colonial times through the present day.

Hi 220 ANCIENT HISTORY. Cat. 1. 3 hrs. Prerequisites: Sophomores, Juniors, and Seniors. Intensive study of Egypt; the age of Pericles, Alexander and Augustus; industry, government, art, literature and society of each period.

Hi 221 RENAISSANCE AND REFORMATION. Cat. 3. 3 hrs. Prerequisites: Hi 101, Hi 102 or Hi 103, Hi 104. A factual survey of Europe from the middle of the 13th to the middle of the 16th century.

Hi 222 THE AGE OF LOUIS XIV AND THE ANCIEN REGIME. Cat. 2. 3 hrs. Prerequisites: Juniors and Seniors, or consent of Instructor. Seventeenth and Eighteenth century France down to the French Revolution; Divine Right, domestic and foreign policies of Louis XIV; subsequent decline of France.

Hi 223 HISTORY OF MODERN FRANCE. Cat. 2. 3 hrs. Prerequisites: Juniors and Seniors, or consent of Instructor. From the Revolution to the Fifth Republic; changes in French institutions due to social, economic and political forces.

Hi 224 ENGLISH HISTORY I. Cat. 2. 3 hrs. Prerequisites: Sophomores, Juniors, and Seniors.

Hi 225 ENGLISH HISTORY II. Cat. 2. 3 hrs. Prerequisite: Hi 224. Development of England's political structure; growth of the party system, evolution of the cabinet, development of English society.

Hi 226 HISTORY OF MODERN GERMANY. Cat. 1. 3 hrs. Prerequisites: Sophomores, Juniors, and Seniors. Effects of the Napoleonic Reorganization of the Holy Roman Empire; origins of modern Germany; the Empire, the Weimar Republic, Hitler's Third Reich; analysis of the two Germanies.

Hi 227 EUROPE IN THE 19TH CENTURY. Cat. 1. 3 hrs. Prerequisites: Hi 101, Hi 102 or Hi 103, Hi 104. Dictatorship of Napoleon and his reorganization of Europe; liberalism and nationalism;second French Empire; unification of Italy and Germany.

Hi 228 HISTORY OF EUROPE SINCE 1914. Cat. 1. 3 hrs. Prerequisites: Hi 101, Hi 102 or Hi 103, Hi 104. Political developments and institutional changes from 1914 to the present; the heritage of the 19th century transmuted to an indefinite future.

Hi 229 HISTORY OF MODERN EAST CENTRAL EUROPE. Cat. 1. 3 hrs. Prerequisites: Hi 101, Hi 102 or Hi 103, Hi 104. Political developments in East Central Europe from the partition of Poland to World War I; the Balkans under Ottoman rule; Russia's influence on historic events in the region.

Hi 230 DIPLOMATIC HISTORY OF MODERN EUROPE. Cat. 2. 3 hrs. Prerequisites: Juniors and Seniors. Causes of World Wars I and II; international relations of the great powers; the alliance system, collective security, totalitarianism, economic depression and technology.

Hi 231 EUROPEAN INTELLECTUAL HISTORY I. Cat. 2. 3 hrs. Prerequisites: Juniors and Seniors.

Hi 232 EUROPEAN INTELLECTUAL HISTORY II. Cat. 2. 3 hrs. Prerequisites: Juniors and Seniors. The main theoretical works, philosophic, psychological and scientific from Plato to the Enlightenment.

Hi 233 HISTORY OF LATIN AMERICA. Cat. 1. 3 hrs. Prerequisites: One year college level history, or consent of Instructor. Survey of Latin American history stressing the evolution of cultural and political patterns which define Latin American societies.

Hi 234 RUSSIAN HISTORY I. Cat. 1. 3 hrs. Prerequisites: Hi 101, Hi 102 or Hi 103, Hi 104.

Hi 235 RUSSIAN HISTORY II. Cat. 1. 3 hrs. Prerequisites: Hi 101, Hi 102 or Hi 103, Hi 104. Major political, intellectual and social currents of Russian history from Kievan times to the present; Russian Marxism, Leninism, Stalinism, and Russia and the Cold War.

Hi 236 MODERN FAR EASTERN HISTORY I. Cat. 1. 3 hrs. Prerequisites: Sophomores, Juniors and Seniors.

Hi 237 MODERN FAR EASTERN HISTORY II. Cat. 1. 3 hrs. Prerequisites: Sophomores, Juniors and Seniors. The great civilizations of China and Japan, as well as Korea and Southeast Asia; the complex problems of the Far East and of American policy there.

Hi 238 HISTORY OF EUROPEAN POLITICAL PHILOSOPHY I. Cat. 2. 3 hrs. Prerequisites: Juniors and Seniors, or consent of Instructor.

Hi 239 HISTORY OF EUROPEAN POLITICAL PHILOSOPHY II. Cat. 2. 3 hrs. Prerequisites: Juniors and Seniors, or consent of Instructor.

Hi 238 — an analysis of theoretic origins in classical Greece; intensive study of major political thinkers from Machiavelli to Rousseau.

Hi 239 — continuation of Hi 238; political thought of the Enlightenment and revolutionary era; the utilitarian, nationalist and socialist schools; fascism, communism and liberalism.

Hi 240 COMPARATIVE IMPERIALISM. Cat. 1. 3 hrs. Prerequisites: Hi 102 or consent of Instructor. Developments in, and differences between, the British and French Overseas Empires, from the late 18th century to the present.

Hi 241 ENGLISH CONSTITUTIONAL HISTORY. Cat. 1. 3 hrs. Prerequisites: Sophomores, Juniors and Seniors. The development of English constitutional history and principles from the conquest by the Anglo-Saxons through the present day.

Hi 250 THE IMAGE OF WOMEN IN WESTERN HISTORY: APPEARANCE AND REALITY. Cat. 1. 3 hrs. Prerequi-

sites: Hi 111, Hi 112, or Hi 101, Hi 102; Juniors and Seniors. An exploration of the various views of women at selected stages in western history in selected countries; both appearance and reality.

Hi 260 TRADITIONAL AFRICA. Cat. 3. 3 hrs. Prerequisites: One year of college-level history or consent of Instructor. Pre-European and sub-Saharan Africa; anthropological study of traditional Africa's varied cultures; pre-European African history; geographical influences and emergence of African city states and empires; European arrival and slave trade.

Hi 261 MIDDLE EAST HISTORY I. Cat. 1. 3 hrs. Prerequisites: Hi 101, Hi 102 or Hi 103, Hi 104.

Hi 262 MIDDLE EAST HISTORY II. Cat. 1. 3 hrs. Prerequisites: Hi 101, Hi 102 or Hi 103, Hi 104. The rise and expansion of Islam, the Caliphate, the Muslim civilization, the East-West confrontation; the rise and decline of the Ottoman Empire, its institutions, European colonialism, Ottoman reform and problems, World War I, and the emergence of new independent states.

Hi 265 MODERN AFRICAN HISTORY. Cat. 3. 3 hrs. Prerequisites: Hi 260 or consent of Instructor. Colonial and independent Africa with major emphasis on conflict of European and African cultures; a topical survey of major contours of modern African development; industrialization and urbanization, African socialism and nationalism.

Hi 300 SEMINAR IN AMERICAN HISTORIOGRAPHY. Cat. 3. 3 hrs. Prerequisite: Prior written consent of Instructor. Intensive study of original sources and preparation of a research paper; analysis of major schools of historical thought.

Hi 301 SEMINAR IN AMERICAN CONSTITUTIONAL HISTORY. Cat. 1. 3 hrs. Prerequisite: Prior written consent of Instructor. Reading, research and discussion on a phase of American constitutional history; an original paper of significant scholarship is required.

Hi 305 SEMINAR IN EUROPEAN HISTORIOGRAPHY. Cat. 3. 3 hrs. Prerequisite: Written consent of Instructor. To investigate schools of historical thought, attitudes and methods, with research emphasis on the writing of history and discussion of the findings of students.

Hi 318 AMERICAN HISTORIC MUSEUMS AND RESTORATIONS. Cat. 1. 3 hrs. Prerequisites: Hi 111, Hi 112 or consent of Instructor. Development of historic museums and restorations in this country; problems associated with the creation, development and operation of these organizations; special emphasis on New England; field trips.

Hi 400 INTERNSHIP IN AMERICAN STUDIES. Cat. 1. 6-12 hrs. Prerequisites: Consent of Instructor. Internship at a historic museum, archive, restoration or other public service institution; performing tasks at a beginning professional level, with supervision.

Hi 500 INDEPENDENT STUDY IN HISTORY. Cat. 1. 1-3 hrs. Prerequisite: Approval of department or consent of Instructor. A special opportunity for advanced students to pursue a topic of special interest; investigations into original and authoritative secondary sources; extensive readings and periodic consultations.

## Political Science

Po 100 FEDERAL AND STATE CONSTITUTIONS. Cat. 1. 1 hr. Prerequisites: none. Required of all students who do not take one of the following courses: Hi 111, Hi 112, or Hi 218, or Po 110.

Po 101 PRINCIPLES OF POLITICAL SCIENCE. Cat. 1. 3 hrs. Prerequisites: none. An introduction to political analysis; the study of the problems of natural law, power, justice and liberty.

Po 110 AMERICAN GOVERNMENT. Cat. 1. 3 hrs. Prerequisite: Po 101. Our national government; its federal form, its system of checks and balances in national and state governments, its evolutionary nature.

Po 115 STATE AND LOCAL GOVERNMENT. Cat. 1. 3 hrs. Prerequisite: Po 101. The impact of the community upon inter-governmental relations; development of metropolitan problems; the making of public policy and citizen control.

Po 120 COMPARATIVE POLITICS I. Cat. 1. 3 hrs. Prerequisite: Po 101.

Po 121 COMPARATIVE POLITICS II. Cat. 1. 3 hrs. Prerequisite: Po 101. The political systems of major European and non-European systems; historic development of these systems and their ideologies.

Po 201 INTERNATIONAL RELATIONS I. Cat. 1. 3 hrs. Prerequisite: Po 101.

Po 202 INTERNATIONAL RELATIONS II. Cat. 1. 3 hrs. Prerequisite: Po 101. Current world affairs; elements of national power and the factors that influence power and the formation and execution of foreign policy.

Po 210 U.S. CONSTITUTIONAL HISTORY. Cat. 1. 3 hrs. See Hi 218 & Hi 219 for course description.

Po 211 HISTORY OF U.S. FOREIGN POLICY I. Cat. 1. 3 hrs.
Po 212 HISTORY OF U.S. FOREIGN POLICY II. Cat. 1. 3 hrs. See Hi 211 & Hi 212 for course descriptions.

Po 215 POLITICAL PARTIES AND PRESSURE GROUPS. Cat. 1. 3 hrs. Prerequisites: Po 101 or consent of Instructor. The functions, organization and methods of political parties; the role of interest groups in the American political process.

Po 217 THE LEGISLATIVE PROCESS. Cat. 1. 3 hrs. Prerequisites: Po 101, Po 110 or consent of Instructor. Nature and functions of the U.S. Congress; legislative campaigns, the politics of law making, congressional investigation and major problems of Congress.

Po 220 GOVERNMENT AND POLITICS OF LATIN AMERICA. Cat. 1. 3 hrs. Prerequisites: Po 101 or consent of Instructor. The political organization, problems and possibilities of some representative Latin American countries; crisis areas such as Cuba and American responses to these crisis areas.

Po 230 THE POLITICS OF THE MIDDLE EAST I. Cat. 1. 3 hrs. Prerequisites: Po 101 or consent of Instructor.

Po 231 THE POLITICS OF THE MIDDLE EAST II. Cat. 1. 3 hrs. Prerequisites: Po 101 or consent of Instructor.

The Eastern Mediterranean world in the 20th century; problems of the new nations of the area and conflicts among them; the role of the major powers in this region.

Po 238 HISTORY OF EUROPEAN POLITICAL PHILOSOPHY I. Cat. 2. 3 hrs.

Po 239 HISTORY OF EUROPEAN POLITICAL PHILOSOPHY II. Cat. 2. 3 hrs.

Po 238 — see Hi 238 for course description.
Po 239 — see Hi 239 for course description.

Po 250 SOVIET GOVERNMENT AND POLITICS. Cat. 1. 3 hrs. Prerequisites: Po 101 or consent of Instructor. The nature of the Soviet system of government; the dynamics of modern totalitarian dictatorship and the role of the party as reflected in domestic political developments.

Po 255 SOVIET FOREIGN POLICY. Cat. 1. 3 hrs. Prerequisites: Po 101 or consent of Instructor. Analysis of the history of Soviet foreign relations under Lenin, Stalin, Khrushchev and Brezhnev; the role of ideology in the formulation and implementation of Soviet foreign policy.

Po 260 GOVERNMENT AND POLITICS OF CHINA. Cat. 1. 3 hrs. Prerequisites: Po 101 or consent of Instructor. Political and international developments of contemporary China; communist ideology and instruments of power.

Po 270 COMPARATIVE REVOLUTION. Cat. 1. 3 hrs. Prerequisites: Po 101 or consent of Instructor. The causes and dynamics of major revolutionary movements and ideologies in Western history; extensive discussion of readings.

Po 275 TOTALITARIAN PATTERNS OF GOVERNMENT. Cat. 2. 3 hrs. Prerequisites: Po 101 or consent of Instructor. The nature, basic philosophy, personnel and implementation of the three typical modern totalitarian types of government — Communism, Fascism, and Nazism.

Po 280 DYNAMICS OF DECISION MAKING IN AMERICAN FOREIGN POLICY SINCE THE COLD WAR. Cat. 1. 3 hrs. Prerequisites: Hi 112 or Po 101, or consent of Instructor. The nature of national interests and the problems of implementation; analysis of selected foreign policy formulations under recent presidents.

Po 301 SEMINAR IN AMERICAN CONSTITUTIONAL HISTORY. Cat. 1. 3 hrs.
See Hi 301 for course description.

Po 340 SEMINAR IN REVOLUTION. Cat. 3. 3 hrs. Prerequisites: Po 270 or consent of Instructor. In-depth research and discussion; each student selects an aspect of revolutionary events or components and explores it within and without the classroom.

## DEPARTMENT OF MATHEMATICS

The baccalaureate degree candidate in mathematics can train for various programs. He may prepare himself for a teaching career, for advanced study, for research work, for actuarial science, for engineering, and for business and industry.

Thirty semester hours of credit are required by the college to meet the minimum standard for a major in mathematics. The course offerings in Calculus, I, II, III, IV and Modern Mathematics are required for mathematics majors. All courses listed in the catalog are acceptable for the major except those which carry a number in the 100 series and Ma 250, Ma 251 — Introduction to Statistics I and II. There are now twenty-five courses or seventy-nine hours from which a student in this major may choose.

Eighteen semester hours of credit are required by the college to meet the minimum standard for a minor in mathematics. The course offerings in Calculus I and II, and Modern Mathematics are recommended for mathematics minors. All courses listed in the catalog are acceptable for the minor except Ma 100 — Basic Mathematics. Those students in elementary education who have a concentration in mathematics should consult the Elementary Education Department for further information.

The student who plans to continue to a more advanced career in the field is urged to take Abstract Algebra, Linear Algebra, Number Theory, as well as Advanced Calculus. Those who plan to teach at the secondary school level are urged to take Modern Geometry, Linear Algebra, History of Mathematics, Introduction to Statistics, and Problem Solving. Probability, Statistics, Numerical Methods and Numerical Analysis should be useful for those interested in actuarial work. Those interested in the engineering program should take Differential Equations in addition to the required calculus sequence.

The incoming Freshmen will be assigned to the Department Chairman, who, in turn, will make an even distribution among the members of the department. Students entering the actuarial program will be assigned to Dr. Kenneth Schoen. All transfer students will be assigned to Mr. John Hayes. Students entering the engineering program will be assigned to the Department Chairman. The Advisor will help the student to plan his course so that he will fulfill not only his math requirements but also the degree requirements.

In addition to the basic program in mathematics, the Department of Mathematics also offers two other program options: Actuarial Program, and Professional Preparation for Engineering Fields and Architecture (see following).

## Recommended Program for Mathematics Majors (B.A. / B.S.)

### FRESHMEN

| Fall Semester | Spring Semester |
|---|---|
| Calculus I | Calculus II |
| College Trigonometry | Modern Math II |
| Modern Math I | Fortran IV |
| Computer Fundamentals for Computation | |

### SOPHOMORES

| Fall Semester | Spring Semester * |
|---|---|
| Calculus III | Calculus IV |
| Abstract Algebra | History of Math |
| Introduction to Statistics | Ring Theory |
| | Linear Algebra |
| | Number Theory |

### JUNIORS

| Fall Semester | Spring Semester * |
|---|---|
| Advanced Calculus I | Advanced Calculus II |
| Modern Geometry I | Modern Geometry II |
| Probability | Statistics |
| Introduction to Actuarial Science | Differential Equations |
| Numerical Analysis | Numerical Methods |

### SENIORS

| Fall Semester | Spring Semester * |
|---|---|
| Independent Study | Complex Variables |
| | Topology |
| | Partial Differential Equations |

* *If minor is secondary education, see suggested program under secondary education.*

! *All Math electives should be selected with the advice and consent of the student's Faculty Advisor.*

## Recommended Program for Mathematics Minor

Modern Mathematics I; Calculus I, II; three math electives.

## Actuarial Program

The actuarial program is designed to prepare a student to pass the first two or three Associateship Examinations before graduation. In addition, anyone who enters this program would also satisfy the requirements for a mathematics major at WSC.

After graduation from WSC, these participants could apply to colleges that offer a M.S. Degree in Actuarial Science or could seek immediate employment in insurance companies. The independent study courses in the Senior year should be a preparation for the necessary examinations in the society of actuaries.

## Recommended Program of Studies

| FRESHMAN | | SOPHOMORE | |
|---|---|---|---|
| Fall Semester | Spring Semester | Fall Semester | Spring Semester |
| Modern Math I | Modern Math II | Calculus III | Calculus IV |
| English Composition | Calculus II | Intro. to Act. Science | Ord. Dif. Equation |
| Calculus I | Fortran IV | | |
| Comp. Fund. for Computer | | | |

| JUNIOR | | SENIOR | |
|---|---|---|---|
| Fall Semester | Spring Semester | Fall Semester | Spring Semester |
| Intro. to Num. Ana. | Numerical Methods | Probability | Statistics |
| Linear Algebra | Partial Dif. Equation | Independent Study | Independent Study |

## Professional Preparation for Engineering Fields and Architecture*

The Engineering Program is designed to offer a general foundation for engineering so that the student will be prepared for various areas of specialization upon his transfer to an upper-division engineering curriculum. A student in this program would also have the option of developing a strong background in the major fields. In particular, he could choose to complete the requirements for a mathematics major.

## Recommended Program of Studies

| FRESHMAN | | SOPHOMORE | |
|---|---|---|---|
| Fall Semester | Spring Semester | Fall Semester | Spring Semester |
| English Composition | Calculus II | Calculus III | Calculus IV |
| Social Science Elective | Physics II | General Chemistry I | General Chemistry II |
| Calculus I | Fortran IV | Statistics | Ordinary Diff. Equations |
| Physics I | Electives | Electives | Dynamics |
| Intro. to Computer Science | Physical Education | Physical Education | Elective |
| Physical Education | | | Physical Education |

* *Students in this program are strongly encouraged to indicate their second field of study. The student who selects this optional program in the Department of Mathematics will have the opportunity during his Freshman year to combine this program with any of the following major fields of study: Mathematics; Administrative Studies; Chemistry; Biology; Geography.*

## *COURSE DESCRIPTIONS*

Ma 100 **BASIC MATHEMATICS.** Cat. 3. 2 hrs. Prerequisites: none. This course provides the student who has little or no background in mathematics with the necessary arithmetic and algebra for the understanding of today's mathematics; meets three (3) times a week.

Ma 110 **COLLEGE ALGEBRA.** Cat. 1. 3 hrs. Prerequisites: none. Properties of the real number system based upon set-theoritical foundations; linear, quadratic, and simultaneous equations, inequalities, absolute value, complex numbers, determinants, mathematical induction, the binomial, theorem, permutations, and combinations, series, probability, and statistics; non-credit for math majors.

Ma 120 **COLLEGE TRIGONOMETRY.** Cat. 1. 3 hrs. Prerequisites: none. Plane trigonometry useful in the teaching of mathematics in the secondary schools and required for the study of calculus; trigonometry of the general angle, the use of logarithms, solution of right triangles, radian measure, identities and other topics; non-credit for math majors.

Ma 130 **MODERN MATHEMATICS FOR ELEMENTARY MAJORS.** Cat. 1. 3 hrs. Prerequisites: none. Mathematical concepts needed to teach any of the new approaches found in modern arithmetic textbooks; prepares prospective teachers for inevitable future changes in mathematics curricula; the structure of the numbers system; algebraic systems; geometry found in elementary texts; non-credit for math majors.

Ma 131 MODERN GEOMETRY FOR ELEMENTARY MAJORS. Cat. 1. 3 hrs. Prerequisites: 2 years high school college preparatory math. Geometric concepts from an intuitive point of view; sets of points in a plane will include measurement of length and angles, simple closed curves, circles, mathematical constructions, congruent sets of points, area of plane regions, and graphs of points in plane; non-credit for math majors.

Ma 140 PROBLEM SOLVING. Cat. 1. 1 hr. Prerequisite: High school algebra. Develops skill in translating word problems into mathematical language; types of problems and basic relationships are discussed; non-credit for math majors.

Ma 160 SURVEY OF MATHEMATICS I. Cat. 1. 3 hrs. Prerequisites: none.

Ma 161 SURVEY OF MATHEMATICS II. Cat. 1. 3 hrs. Prerequisite: Ma 160.
Topics to convey an appreciation of mathematics such as logic, algebra, geometry, number theory, probability and statistics, and others.

Ma 170 ANALYTICAL GEOMETRY. Cat. 1. 3 hrs. Prerequisites: none. Essential classical topics of analytical geometry; graphs and their uses, and applications to empirical curve fitting.

Ma 220 MODERN MATHEMATICS I. Cat. 1. 3 hrs. Prerequisites: none.

Ma 221 MODERN MATHEMATICS II. Cat. 1. 3 hrs. Prerequisites: Ma 220.
Ma 220 — relations, functions, binary operations, groups, rings, fields, the structure of the number system, and numeration systems.
Ma 221 — continuation of Ma 220; algebraic structures, equivalence relations; inequalities; construction of the rationals.

Ma 250 INTRODUCTION TO STATISTICS I. Cat. 1. 3 hrs. Prerequisites: none.

Ma 251 INTRODUCTION TO STATISTICS II. Cat. 1. 3 hrs. Prerequisites: Ma 250 or equivalent or permission of Instructor
Ma 250 — probability and basic statistical techniques and decision making as they are applied to data; non-credit for math majors.
Ma 251 — continuation of Ma 250; including such topics as regression, correlation, Chi-square and contingency tables, analysis of variance and sampling techniques; use of computers will be employed.

Ma 300 CALCULUS I. Cat. 1. 4 hrs. Prerequisite: Trigonometry, Ma 120.

Ma 301 CALCULUS II. Cat. 1. 4 hrs. Prerequisite: Ma 300.
Ma 300 — rate of change of a function; limits, derivatives of algebraic functions and applications of the derivative; integration of algebraic functions and trigonometric functions.
Ma 301 — continuation of Ma 300; integration, applications of the definite integral, transcendental functions and methods of integration.

Ma 305 ABSTRACT ALGEBRA. Cat. 1. 3 hrs. Prerequisite: Ma 221. Fundamental concepts of sets, mathematical systems, groups, rings, and fields.

Ma 310 CALCULUS III. Cat. 1. 3 hrs. Prerequisite: Ma 301.

Ma 311 CALCULUS IV. Cat. 1. 3 hrs. Prerequisite: Ma 310.
Ma 310 — analytical geometry of the conic sections, hyperbolic functions, polar coordinates, solid analytic geometry and elementary vector analysis.
Ma 311 — continuation of Ma 310; partial differentiation, multiple integration, infinite series, and complex numbers and functions.

Ma 320 ORDINARY DIFFERENTIAL EQUATIONS. Cat. 1. 3 hrs. Prerequisite: Ma 311 (or as co-requisite). Theory and application of ordinary differential equations of the first and second orders, with linear constant-coefficient type; partial differential equations.

Ma 330 LINEAR ALGEBRA Cat. 1. 3 hrs. Prerequisite: Ma 301. Solutions of simultaneous equations by means of matrices and determinants; elementary properties of vector spaces, linear transformations, characteristic values and bi-linear and quadratic forms.

Ma 340 MODERN GEOMETRY I. Cat. 1. 3 hrs. Prerequisite: Ma 301.

Ma 341 MODERN GEOMETRY II. Cat. 3. 3 hrs. Prerequisite: Ma 340
Ma 340 — axiomatic geometry with emphasis on Euclidean geometry; non-Euclidean geometrics; principle of duality; Desargues', Pascal's and Brianchon's theorems; harmonic sets and divisions; cross ratio and others.
Ma 341 — continuation of Modern Geometry I; with topics from Projective Geometry.

Ma 350 HISTORY OF MATHEMATICS. Cat. 1. 3 hrs. Prerequisites: Math majors or minors or elementary majors with a concentration in math. Surveys the developments of algebra, arithmetic, plane geometry and trigonometry by tracing certain fundamental concepts in mathematics such as number, counting, relations, and others; deductive and inductive reasoning from an axiomatic approach; starts with Euclid and ends with the 20th century.

Ma 360 NUMBER THEORY. Cat. 1. 3 hrs. Prerequisites: Ma 220 or Ma 130. Topics from the theory of numbers; divisibility properties of integers, prime numbers, the Euclidean algorithm, the unique factorization theorem, congruences, Diophantine equations, quadratic reciprocity, number theoretic functions; open to upper class mathematics majors and minors.

Ma 370 INTRODUCTION TO ACTUARIAL SCIENCE. Cat. 3. 3 hrs. Prerequisites: Ma 301 or equivalent. Basic concepts of probability and finite differences with applications to topics in actuarial science, including compound interest.

Ma 380 PROBABILITY. Cat. 1. 3 hrs. Prerequisites: none. Methods for interpreting the results of experiments; distributions, probability, random variables, binomial probability, normal probability.

Ma 381 MATHEMATICAL STATISTICS. Cat. 1. 3 hrs. Prerequisite: Ma 380. Sequel to Ma 380; sampling distributions, point and interval estimation, tests of hypotheses, regression and correlation, analysis of variance, decision theory.

Ma 401 RING THEORY. Cat. 3. 3 hrs. Prerequisite: Ma 305. Isomorphism theorems; integral domains and fields; maximal, prime and primary ideals; divisibility theory; polynomial rings, radicals; direct sums.

Ma 410 ADVANCED CALCULUS I. Cat. 1. 3 hrs. Prerequisite: Ma 311.

Ma 411 ADVANCED CALCULUS II. Cat. 1. 3 hrs. Prerequisite: Ma 410.

Ma 410 — elementary topology; definition and properties of functions; rigorous treatment of integration; Taylor's theorem; infinite series and power series. Ma 411 — continuation of Ma 410; functions of several variables; introduction to different geometry, differential forms, theorems of Gauss, Green and Stokes; Lebesque integration may be included.

Ma 425 AN INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS. Cat. 3. 3 hrs. Prerequisite: Ma 320 or equivalent. Solutions and techniques regarding partial differential equations for math and science students.

Ma 430 TOPOLOGY. Cat. 2. 3 hrs. Prerequisites: Ma 311, Ma 220. Algebra of sets; cardinal and ordinal numbers; topological spaces; connectedness, compactness, and continuity; separation and countability; axioms; metric spaces; complete metric spaces; product spaces; function and quotient spaces.

Ma 440 INTRODUCTION TO NUMERICAL ANALYSIS. Cat. 1. 4 hrs. Prerequisites: Calculus IV or equivalent or permission of the Instructor. Methods for solutions of equations, for physics and mathematics majors or minors and computer science students; a laboratory session in conjunction with the lectures with some computing devices and techniques.

Ma 441 NUMERICAL METHODS. Cat. 1. 4 hrs. Prerequisite: Ma 440. Numerical methods for solving differential equations in electrical, mechanical, chemical, biological, and other physical problems; a laboratory session in conjunction with the lectures with some computing devices and techniques.

Ma 450 COMPLEX VARIABLES. Cat. 3. 3 hrs. Prerequisite: Ma 311. Theory of functions of a complex variable; complex numbers, functions, limits and continuity, differentiation, Cauchy-Riemann Equations, Cauchy's Theorm, Taylor and Laurent series, residues and poles.

Ma 500 INDEPENDENT STUDY IN MATHEMATICS. Cat. 3. 1-3 hrs. Prerequisite: Consent of department chairman. Special topics not normally covered in course work; subject matter varies to suit individual and may be related to research activity of the Instructor.

## DEPARTMENT OF MEDIA

The Media Department prepares students to become professional staff members competent to organize, administer, and operate school media programs in accordance with certification laws for school librarians and audiovisual media specialists. It aims to assist students taking majors or minors in education to gain an understanding of the use of modern learning resources and their supportive technology. It also offers all students the opportunity to become acquainted with the basic sources of information, the role of the Learning Resources Center, and the newest developments in the field of communication and learning technology.

There is no major in library science or audiovisual media specialization at the undergraduate level. However, several options are offered if the student wishes to either minor or concentrate in these areas.

Any student may elect a minor in Library/Media. Consultation with both his major Advisor and the chairman of the Media Department is strongly recommended in order to develop a program which best meets the student's educational and/or vocational goals. A minimum of eighteen semester hours of departmental offerings is required.

Elementary education majors may wish to concentrate in Library/Media. This program could be designed to emphasize library science courses, audiovisual production courses, or a combination of both areas. Fifteen semester hours of credit, approved by major Advisor, are required.

Elementary education majors may fulfill concentration requirements with a special program in School Library Science. This option will enable students to meet the Massachusetts requirements for School Librarian Certification: twelve semester hours of course work in any four of these areas — Philosophy of Education, Psychology of Education, Methods and Materials, Curriculum Development, Reading, or Guidance. In addition, specific required courses are as follows: Introduction to Reference Sources, Administration of the School Learning Resources Center, Cataloging and Classification, Learning Resources for Children, The Librarian in the Modern School, and Field Experience. Freshmen who have decided to embark on this program must contact the Media Department Chairman for assignment to ancillary Advisor.

## Recommended Program for a Minor in Library/Media:*

| FRESHMEN | | SOPHOMORES | |
|---|---|---|---|
| **Fall Semester** | **Spring Semester** | **Fall Semester** | **Spring Semester** |
| Me 110 | | Me 140 or Me 210 | Me 150 or Me 230 |
| **JUNIORS** | | **SENIORS** | |
| **Fall Semester** | **Spring Semester** | **Fall Semester** | **Spring Semester** |
| Me 220 or Me 310 | Me 320 or Me 330 | Me 340 | Me 420<br>Me 430 or Me 440 or Me 450 |

* *There are two areas of specialization at present offered through the Media Department: School Librarianship or Audiovisual Media Specialization. For that reason we would prefer to tailor the minor and concentration (for Elementary Majors) to the specific abilities and individual goals of each student.*

## The Theatre Program

This program has been designed to provide the student with a strong basic background in stage theory, practice and history. It presents a general theatre program for the student who may plan to continue a more specialized study later; it trains individuals in play production. In accord with the aims of liberal arts education in general, the critical faculties of all students are cultivated in order that they may be appreciative and informed members of the modern audience.

The major laboratory for the teaching experiments of the department is the WSC Theatre in the Administration Building. The auditorium provides an intimate atmosphere for the theatre experience.

The Program sponsors two major productions per year under faculty directorship. In addition, students direct and produce a series of one-act plays.

An academic minor may be obtained upon completion of eighteen (18) semester hours of credit. The department recommends a broad approach to the area.

## Recommended Courses for a Minor in Theatre

| | Courses | Prerequisites |
|---|---|---|
| Sd 250 | Oral Interpretation of Literature | none |
| Sd 240 | Fundamentals of Acting I | Sd 250 |
| Sd 241 | Fundamentals of Acting II | Sd 240 |
| Sd 310 | *Stagecraft I and/or Sd 311 *Stagecraft II | none |
| Sd 330 | *History of the Theatre I | none |
| Sd 320 | Playscript Preparation | none |
| Sd 331 | *History of the Theatre II | none |
| Sd 280 | Stage Direction I | Sd 240 & Sd 320 |
| Sd 281 | Stage Direction II | Sd 280 |
| Sd 290 | *Theatre for Children | none |
| Sd 321 | Rehearsal and Performance (may be repeated as desired) | none |
| Sd 332 | *The American Theatre | none |
| Sd 330 | *History of the Theatre I | none |
| Sd 331 | *History of the Theatre II | none |
| Sd 386 | *Playwriting | none |

* *- indicates classes outside the prerequisite structure; their placement above is arbitrary and may be changed radically, as they require no previous study. For concentration Oral Interpretation of Literature would be eliminated.*

*With the exception of those courses starred (*), the curriculum has been arranged to allow students to study and fulfill prerequisite requirements in a logical progressive sequence. The pattern suggested may, of course, be altered to meet individual needs and interests.*

## COURSE DESCRIPTIONS

Me 120 HISTORY OF BOOKS AND LIBRARIES. Cat. 3. 3 hrs. Prerequisites: none. Various forms of written communication throughout the ages; ways in which society has collected, preserved, and disseminated its records.

Me 130 THE LIBRARY AS A SOCIAL INSTITUTION. Cat. 2. 3 hrs. Prerequisites: none. Social, political, and economic environments which influence development of libraries and information systems and their role in a democratic society; problems and opportunities of libraries in an age of rapid change, controversy, and technology.

Me 140 UTILIZATION OF INSTRUCTIONAL MATERIALS. Cat. 1. 3 hrs. Prerequisites: none. Selection and use of major types of audiovisual materials; use of projection and audio equipment; preparation and use of bulletins, and flannel board.

Me 145 PREPARATION OF INEXPENSIVE INSTRUCTIONAL MEDIA. Cat. 1. 3 hrs. Prerequisites: none. Laboratory practice in creating visual instructional media applying lettering, coloring and mounting techniques; end products include pictures, maps, charts, and graphs for projected and non-projected use.

Me 150 INTRODUCTION TO PHOTOGRAPHY. Cat. 1. 3 hrs. Prerequisites: none. Basic principles, skills, techniques of photography; their application to visual communication.

Me 210 INTRODUCTION TO REFERENCE SOURCES. Cat. 1. 3 hrs. Prerequisites: none. Fundamental philosophy and techniques of reference service in the school library; content and use of basic reference tools with practical problems.

Me 220 PRINCIPLES OF GRAPHIC COMMUNICATION. Cat. 2. 3 hrs. Prerequisites: none. Language and design of graphic communication; principles of psychology and visual arts; laboratory exercises in creative development of opaque and transparent visual imagery as communication media.

Me 230 ADMINISTRATION OF THE SCHOOL LEARNING RESOURCES CENTER. Cat. 1. 3 hrs. Prerequisites: none. Theory and practice of organizing and administering library of materials and program of service fundamental to achievement of educational goals of modern school; covers print and non-print materials.

Me 240 ELEMENTS OF SCREEN LANGUAGE. Cat. 3. 3 hrs. Prerequisites: none. Images, motion, and sound in film and television; use of frame, camera viewpoint, light and shadow, color, exposure, in visual and aural communication.

Me 250 ADVANCED PHOTOGRAPHY I. Cat. 1. 3hrs. Prerequisites: Me 150 or consent of Instructor. Principles and application of zone system; characteristics of photographic materials; critiques; concentration on theme of student's choice.

Me 305 LIBRARY SKILLS IN THE ELEMENTARY SCHOOL. Cat. 2. 3 hrs. Prerequisites: Open only to Junior and Senior elementary majors. Overview of procedures and materials helpful in teaching essential library skills to elementary school pupils; information location; print and non-print sources.

Me 315 CATALOGING AND ORGANIZING LEARNING MATERIALS. Cat. 1. 3 hrs. Prerequisites: none. Principles and procedures involved in acquisitioning, cataloging, and processing book and non-book materials; skills development in utilizing organizational structure of libraries and in instructing others in use of libraries.

Me 317 ADVANCED CATALOGING AND CLASSIFICATION. Cat. 3. 3 hrs. Prerequisite: Me 315. Practice of the art of cataloging; Anglo-American Rules, Dewey Decimal and Library of Congress Classifications, Sear's and Library of Congress subject headings studied and applied.

Me 320 INTRODUCTION TO SCREEN EDUCATION. Cat. 3. 3 hrs. Prerequisites: none. History and philosophy of screen education movement and its relationship to other educational philosophies; centered around concept of visually literate person; screenings of professionally and student-made films to discover communication about life, society, and education.

Me 330 LEARNING RESOURCES FOR CHILDREN. Cat. 1. 3 hrs. Prerequisites: none. Establishes criteria for evaluating and selecting print and non-print materials; explores use and limitations of standard selection aids and review media; discusses special problems associated with censorship, serials, acquisitions procedures, and weeding.

Me 335 LEARNING RESOURCES FOR YOUNG ADULTS. Cat. 2. 3 hrs. Prerequisites: none. Relationship between educational program of modern secondary school and the collection of book and non-book materials in its library; locating, evaluating, and purchasing suitable materials; brief survey of development of young adult literature; standard review and selection courses; problems of censorship, serials, weeding.

Me 340 BASIC 8MM FILM PRODUCTION. Cat. 1. 3 hrs. Prerequisites: none. Experience in making motion pictures of rudimentary level with or without aural tape accompaniment; critiques of student work.

Me 345 PRODUCING AND DIRECTING AUDIO PROGRAMS. Cat. 2. 3 hrs. Prerequisites: none. Writing, choosing talent, selecting music, and assembling audio programs; radio production; audio instructional materials; use of equipment in student production of actual materials.

Me 350 CLASSROOM USE OF RADIO AND TELEVISION. Cat. 2. 3 hrs. Prerequisites: none. Study in depth of the use of radio and television as instructional media; lab experience in adapting these media to a variety of teaching/learning situations.

Me 355 ELEMENTS OF CLOSED CIRCUIT TELEVISION. Cat. 2. 3 hrs. Prerequisites: none. Theory and practice in the use of closed circuit television including its employment in institutional intra-communication; emphasis is on educational utilization.

Me 420 THE LIBRARIAN IN THE MODERN SCHOOL. Cat. 1. 3 hrs. Prerequisites: Me 210 or Me 440. Prepares school librarian to assist classroom teacher in assembling and introducing materials of all types to pupils through practice in preparing and presenting a resource unit.

Me 430 FIELD EXPERIENCE. Cat. 1. 3 hrs. Prerequisites: Me 210, Me 230, Me 310, Me 330. Required for students in the school library certification program; affords the

opportunity to work in cooperating school library for ninety clock hours under supervision of experienced librarian.

Me 435 COOPERATIVE EXPERIENCE IN MEDIA. Cat. 2. 1-6 hrs. Prerequisites: Any two Media Department courses; open to Media minors. Provides an opportunity to increase experience through an internship with a sponsoring community organization, institution, or business, objectives of the experience will form basis for a written contract between the student and his Faculty Advisor.

Me 440 LIBRARY RESEARCH. Cat. 1. 3 hrs. Prerequisites: none: The most important sources of bibliographic information for both print and non-print media; techniques of searching, citation, and methods for completing and evaluating bibliographies.

Me 445 BIBLIOGRAPHIC DATA PROCESSING. Cat. 3. 3 hrs. Prerequisite: Cs 150. Fundamentals of library systems analysis; application to planning, implementing, and evaluating people-oriented bibliographic systems; assessing practicality of computer to library uses, working with computer specialists.

Me 447 LIBRARY NETWORKS AND TELEPROCESSING. Cat.3. 3 hrs. Prerequisite: Cs 150. The role of the time-shared computer in furthering library networks and sub-networks; current and possible future developments; non-computer related activities of networks.

Me 470 COMMUNICATION THEORY. Cat. 2. 3 hrs. Prerequisites: none. Theories of communication; identification of modes and channels; practical experience in designing and disseminating messages.

Me 480 PRODUCING AND DIRECTING THE TELEVISION PROGRAM. Cat. 2. 3 hrs. Prerequisite: Me 345. Sound, lighting, graphics, staging, direction, and equipment operation with hands-on practical experience.

## SPEECH and THEATRE

Sd 110 PRINCIPLES OF EFFECTIVE SPEECH. Cat. 1. 2 hrs. Prerequisites: none. Detailed study of the vowel and consonant sounds of the best American speech; stresses the elimination of bad speech habits; provides opportunity to form habits of good speech through frequent practice in speaking and reading.

Sd 122 VOICE AND DICTION. Cat. 3. 2 hrs. Prerequisites: none. Speaking and reading situations; special emphasis placed on the development of the voice.

Sd 210 ADVANCED PUBLIC SPEAKING. Cat. 3. 3 hrs. Prerequisites: none. Debate, discussion and other organizational plans for speaking such as the inductive and problem solving plan; more advanced speech activities provided for the students through forensic speaking projects and scheduled out-of-class speech engagements.

Sd 240 FUNDAMENTALS OF ACTING I. Cat. 1. 3 hrs. Prerequisite: Sd 250.

Sd 241 FUNDAMENTALS OF ACTING II. Cat. 2. 3 hrs. Prerequisite: Sd 240.

Sd 240 — workshop covering theory and practice of basic improvisations as well as monologues and duets; principles of characterization, style, intention, etc., are applied to class presentations.

Sd 241 — continuation of Sd 240; featuring further exercises in specific styles of acting, presentation of scenes in classes, and assigned field trips relative to class projects; classroom credit for work done in cooperation with directing-course students.

Sd 250 ORAL INTERPRETATION OF LITERATURE. Cat. 1. 3 hrs. Prerequisites: none. The techniques of oral expression of literature applied to a variety of material, both prose and poetry; selections from lyric, narrative and dramatic sources are analyzed and presented by the student.

Sd 280 STAGE DIRECTION I. Cat. 3. 3 hrs. Prerequisites: Sd 240, Sd 320.

Sd 281 STAGE DIRECTION II. Cat. 3. 3 hrs. Prerequisite: Consent of Instructor.

Sd 280 — problems of play selection, scene analysis, style, casting, blocking.ensemble, and other concerns of the director; each student prepares a production book and directs a short scene for classroom presentation.

Sd 281 — continuation of Sd 280; advanced theoretical and practical problems facing the director; each student directs several scenes for classroom presentation as well as a one-act play; production book required.

Sd 290 THEATRE FOR CHILDREN. Cat. 1. 3 hrs. Prerequisites: none. Organization and conduct of children's theatre: the selection of a play, casting, rehearsals, make-up, central staging, and problems in putting on plays in classrooms and other limited areas.

Sd 310 STAGECRAFT I. Cat. 2. 3 hrs. Prerequisites: none.

Sd 311 STAGECRAFT II. Cat. 2. 3 hrs. Prerequisites: none.

Sd 310 — technical aspects of theatre; the use of stage facilities, the construction and handling of scenery and lights and the role of the stage manager and crew during production; three class hours plus crew work.

Sd 311 — continuation of Sd 310; costuming and make-up, covering basics of history, design, and practical techniques; actual construction of costumes and application of make-up will be part of the practicum.

Sd 320 PLAYSCRIPT PREPARATION. Cat. 2. 3 hrs. Prerequisites: none. Evaluation of the play from a wholly theatrical point of view; instruction in manuscript analysis concentrates on the quantitative and qualitative parts of the play as an aid to the prospective director in conceiving and orchestrating the play for production.

Sd 321 REHEARSAL AND PERFORMANCE. Cat. 1. 1-3 hrs. Prerequisites: none. Registration through add-drop procedure following auditions which take place early each semester; credits vary according to involvement; table of credit values for all production functionaries is available in department production manual.

Sd 322 ACTING WORKSHOP. Cat. 3. 3 hrs. Prerequisites: Sd 240, Sd 241, and Sd 250. Specifically designed for the student who has completed Sd 240 and Sd 241 and wishes to continue to develop his/her skills; although the major emphasis will be on the development of improvisational technique through theatre games, there will be some scene studies.

Sd 330 HISTORY OF THE THEATRE I. Cat. 2. 3 hrs. Prerequisites: none.

Sd 331 HISTORY OF THE THEATRE II. Cat. 2. 3 hrs. Prerequisites: none.
The evolution and development of the theatre in the West from antiquity to the present; the reading of representative plays of each period studied.
Sd 330 — Antiquity, the Middle Ages, the Golden Age of Spain, Italian Renaissance, Tudor and Stuart periods, the age of Louis XIV, the English Restoration and Venetian comedy (Commedia dell' arte).
Sd 331 — 18th century France, 18th century England, the American theatre and European Naturalism.

Sd 332 THE AMERICAN THEATRE. Cat. 1. 3 hrs. Prerequisites: none. History and nature of drama and dramatic performances from the colonial period through the present; relationship of theatre to political, cultural, and social forces and events; readings of selected plays and source material required.

Sd 334 THEORY AND CRITICISM OF THEATRE. Cat. 3. 3 hrs. Prerequisites: none. Theatre theory from the classical masters to modern critics; practical criticism of live theatrical productions.

Sd 386 PLAYWRITING. Cat. 1. 3 hrs. Prerequisites: none. Creating effective characterization, plot development and dramatic action with the ideological understructure of the script; completion of one act play is required.

Sd 500 INDEPENDENT STUDY IN THEATRE. Cat. 3. 3 hrs. Prerequisite: Consent of department. A project of major scope demonstrating original contribution to department, mastery of necessary craft, and when necessary, facility in managing co-workers.

## DEPARTMENT OF MUSIC

To meet the needs of students who wish to fulfill their fine arts requirements in music and for music minors, the Music Department offers a choice of courses in the literature and theory of music and in music education. For those who wish to take part in choral or instrumental activities, either individually or with a group, there are electives in applied music which can be repeated each semester for credit. These include the College Choir, the New Worcester State College Minstrels, the College Community Orchestra, the Concert Band, and Instrumental Ensembles in brass, woodwinds, and piano. These organizations participate in concerts at the college, in the community, in exchange concerts with other colleges and in benefit concerts. These organizations have made significant contributions to the cultural life of the college and the community.

The department considers appreciation, understanding, progress, and quality of music as its goals. Music as an educational factor in developing and broadening the individual student is also an important part of its philosophy.

One of the largest organizations of the college is the Choir. This is made up of men and women who are selected on a try-out basis. Highlights of the year are the Christmas and Spring concerts. In addition, there is the New Worcester State College Minstrels which also takes part in college concerts and exchange programs. A wide variety of musical types and styles is sung by women who are admitted by audition during the first two weeks of each semester.

The College Community Orchestra, Concert Band and Instrumental Ensembles are open to instrumentalists who wish to develop and progress in their appreciation and understanding of standard repertoire, techniques of concert performance, and instrumental routine. These organizations take part in programs both at and away from the college and in benefit concerts.

A major in Music is not available at the present time. A student, however, may elect a program of courses leading to a minor in Music.

### Recommended Program for a Minor in Music

Mu 241, 242 History and Literature of Music I and II; Mu 110 Introduction to Music; Mu 130 Harmony (Prerequisite Mu 110); Six hours in any music courses (except Mu 240, Music Appreciation) with a maximum of three hours credit only in Applied Music. The advice of the Music Department is required.

### *COURSE DESCRIPTIONS*

Mu 110 INTRODUCTION TO MUSIC. Cat. 1. 3 hrs. Prerequisites: none. Acquaints students with the basic materials of music through singing and auralization of simple rhythms, intervals, melodies in both major and minor modes; directed listening and use of simple percussion, melodic, and chordal instruments.

Mu 120 FUNCTIONAL KEYBOARD AND SIGHTSINGING. Cat. 1. 3 hrs. Prerequisites: none. Ear training and development of skills through sight and singing, tonal-rhythmic dictation and keyboard exercises; discussion of individual interests and needs in strengthening weaknesses or aptitudes in music.

Mu 130 HARMONY I. Cat. 1. 3 hrs. Prerequisites: Mu 110 and consent of Instructor.

Mu 131 HARMONY II. Cat. 1. 3 hrs. Prerequisite: Mu 130.
Mu 130 — creative utilization of music theory; primary and secondary chords; four-part harmonization, harmonic analysis.
Mu 131 — continuation of Mu 130; advanced music theory; modulation, secondary chord function, seventh chords; analysis and creative work.

Mu 140 CHOIR. Cat. 1. ½ hr. Prerequisites: none. Mixed chorus repertoire; concentration on vocal problems and techniques; admission by audition.

Mu 150 NEW W.S.C. MINSTRELS. Cat. 1. ½ hr. Prerequisites: none. Training in musicianship and finesse; required to sing music especially written for female voices; admission by audition.

Mu 160 ORCHESTRA. Cat. 1. ½ hr. Prerequisites: none. Study of standard symphonic repertoire; techniques of orchestral routine and performance; admission by audition.

Mu 170 CONCERT BAND. Cat. 1. ½ hr. Prerequisites: none. Study and experience in repertoire and performance; admission by audition.

Mu 180 STRINGS. Cat. 1. 1 hr. Prerequisites: Enrollment by permission of Instructor. Individual or class instruction in violin, viola, cello, bass; open to students with previous training.

Mu 190 WINDS. Cat. 1. 1 hr. Prerequisites: Enrollment by permission of Instructor. Individual or class instruction in woodwinds or brass; open to student with previous training.

Mu 200 PIANO. Cat. 3. 1 hr. Prerequisites: Enrollment by permission of Instructor. Individual or class instruction;

Mu 200 PIANO. Cat. 3. 1 hr. Prerequisites: Enrollment by permission of Instructor. Individual instruction; open only to more advanced students with previous training.

Mu 210 VOICE. Cat. 3. 1 hr. Prerequisites: Enrollment by permission of Instructor. Individual instruction; open only to more advanced students with previous training.

Mu 240 MUSIC APPRECIATION. Cat. 1. 3 hrs. Prerequisites: none. Historical and critical study of music from Middle Ages to modern times; no credit given for this course to those who have successfully completed Mu 241 and/or Mu 242.

Mu 241 HISTORY AND LITERATURE OF MUSIC I. Cat. 1. 3 hrs. Prerequisites: none.

Mu 242 HISTORY AND LITERATURE OF MUSIC II. Cat. 1. 3 hrs. Prerequisites: none.
Mu 241 — from the legacy of Greece and Rome to the early Romantic composers.
Mu 242 — continuation of Mu 241; the Romantic Period to Contemporary twentieth century innovations and techniques.

Mu 250 OPERA. Cat. 1. 3 hrs. Prerequisites: none. Analysis of the masterworks of standard operatic repertoire; use of recordings and tapes.

Mu 260 MUSIC OF THE BAROQUE PERIOD. Cat. 2. 3 hrs. Prerequisites: none. The period of 1600-1750; emphasis on Bach and Handel.

Mu 270 MUSIC OF THE CLASSICAL PERIOD. Cat. 2. 3 hrs. Prerequisites: none. Progressing from the Rococo to the masterworks of Haydn, Mozart and Beethoven.

Mu 275 MUSIC OF THE ROMANTIC PERIOD. Cat. 1. 3 hrs. Prerequisites: none. A general listener's approach to the instrumental and vocal music of Schubert, Chopin, Schumann, and Mendelssohn through Liszt, Berlioz, Verdi, Wagner, Brahms, Tschaikowsky and other 19th century composers.

Mu 280 TWENTIETH CENTURY MUSIC. Cat. 1. 3 hrs. Prerequisites: none. From the impressionists through Stravinsky, the Schoenberg school, Bartok, Hindemith, and other significant composers including electronic and aleatory music.

Mu 290 GOLDEN AGE OF PIANO LITERATURE. Cat. 2. 3 hrs. Prerequisites: none. Beginning with the piano works of Beethoven and continuing through the Romantic tradition to the impressionists.

Mu 300 SYMPHONIC LITERATURE. Cat. 2. 3 hrs. Prerequisites: none. Symphonic masterpieces of the 18th and 19th centuries from Haydn to Richard Strauss.

Mu 310 THE CONCERTO. Cat. 2. 3 hrs. Prerequisites: none. History and development beginning with the concertato style in the Baroque period; Haydn to present.

Mu 320 CHAMBER MUSIC LITERATURE. Cat. 2. 3 hrs. Prerequisites: none. Development, history, and literature of chamber music; emphasis on the 18th and 19th centuries.

Mu 330 MUSIC IN AMERICA. Cat. 2. 3 hrs. Prerequisites: none. Survey of music history and literature in America from the early colonies to the present, including jazz and other mediums.

Mu 400 FIELD EXPERIENCE IN MUSIC EDUCATION. Cat. 1. 2 hrs. Prerequisites: Music concentration elementary majors, Ed 255 — Music in the Elementary School. Directed experience in organizing and directing music activities for students in the elementary schools; coordinating seminar on a regular basis on campus.

Mu 500 INDEPENDENT STUDY IN MUSIC. Cat. 1. 1-3 hrs. Prerequisite: Consent of Instructor. An opportunity for further study in a special field of interest under faculty supervision.

## DEPARTMENT OF NATURAL SCIENCE AND PHYSICS

Students may elect courses in the Physics Department to gain an appreciation of physics fundamentals as part of a broad education, or to obtain background for technical science courses. Science-

oriented students minoring in secondary education may major in physics or form a major in Natural Science by taking a sampling of physics courses along with science courses in other fields. Students majoring in physics should note that graduate study is considered essential for a career in physics.

## Physics Major Requirements

Physics majors must complete a minimum of 30 credit hours in courses offered by the Physics Department. Mathematical Physics I and II, Mechanics I, and Electricity and Magnetism I are required of all physics majors. In addition, the department requires a minimum of one year of calculus and one year of chemistry.

The physics elective courses should be selected to fit the needs and future plans of the individual student.

## Recommended Program for Physics Major (B.A. / B.S.)

### FRESHMEN

| Fall Semester | Spring Semester |
|---|---|
| Physics I or General Physics I* | Physics II or General Physics II |
| Calculus I or Algebra, or Trigonometry I** | Calculus II or Algebra, or Trigonometry II |

### SOPHOMORES

| Fall Semester | Spring Semester |
|---|---|
| Mathematical Physics I | Mathematical Physics II |

### JUNIORS

| Fall Semester | Spring Semester*** |
|---|---|
| Electricity & Magnetism I or Mechanics I | Electricity & Magnetism II or Mechanics II |
| Physics electives | Physics elective |

### SENIORS

| Fall Semester*** | Spring Semester |
|---|---|
| Electricity & Magnetism I or Mechanics I | Electricity & Magnetism II or Mechanics II |

* *Accelerate if Calculus I is taken, then Physics I.*

** *Calculus is a pre-requisite but may be taken concurrently.*

*** *Minors in secondary education must make an adjustment in the physics program; see the model for secondary education.*

## Recommended Program for Physics Minors

General Physics I & II or Physics I & II or Physical Science I & II (Note: This course may be restricted); Mathematical Physics; Instrumentation & Electrical Measurements; Science & Society; Astronomy; Modern Physics; and Physics of Urban & Environmental Problems.

## *COURSE DESCRIPTIONS*

Py 101 **PHYSICAL SCIENCE I.** Cat. 1. 3 hrs. Prerequisites: none.

Py 102 **PHYSICAL SCIENCE II.** Cat. 1. 3 hrs. Prerequisites: Py 101 or consent of Instructor.

Py 101 — survey of physics and chemistry; evolution of concepts and theories; measurement, gravitation, energy, conservation laws, kinetic-molecular theory, and wave motion; two lectures and a two-hour laboratory per week.

Py 102 — continuation of Py 101; light, electricity, magnetism, fundamentals of chemistry, atoms and molecules, the structure of atoms, quantum theory and relativity; two lectures and a two-hour laboratory per week.

Py 103 **SCIENCE AND SOCIETY.** Cat. 1. 3 hrs. Prerequisites: none. Physics examined in a historical and social context; the impact of science on man's interpretation of the natural world, social activities such as economics and war, and the 'humanistic' disciplines; recommended for non-science majors interested in studying the implications of science in the modern world.

Py 104 **PHYSICS OF URBAN AND ENVIRONMENTAL PROBLEMS I.** Cat. 1. 3 hrs. Prerequisites: none. Motion and the use of energy sources will be discussed in the context of several urban and environmental problems;analysis will be physical and qualitative.

Py 105 **INTRODUCTION TO ASTRONOMY.** Cat. 1. 3 hrs. Prerequisites: none. The tools of the astronomer, the nature of celestial space; star locations, motions, nature and evolution; the universe; three lectures per week.

Py 110 **BIOLOGICAL PHYSICS I.** Cat. 3. 3 hrs. Prerequisites: Six hours of biological science and/or consent of Instructor.

Py 111 **BIOLOGICAL PHYSICS II.** Cat. 3. 3 hrs. Prerequisite: Py 110

Py 110 — traditional areas of introductory physics, such as mechanics, heat, sound, with emphasis on bio-

instrumentation; two lectures and one two-hour laboratory per week.

Py 111 — continuation of Py 110; research project required; two lectures and one two-hour laboratory per week.

Py 115 GENERAL PHYSICS I. Cat. 1. 4 hrs. Prerequisite: One year of college mathematics, which may be taken concurrently.

Py 116 GENERAL PHYSICS II. Cat. 1. 4 hrs. Prerequisite: Py 115.

Py 115 — the mechanics of fluids and solids, properties of matter, and heat energy; three lectures and one two-hour laboratory per week.

Py 116 — continuation of Py 115; sound, theories, of light, electricity and magnetism, and topics in modern physics; three lectures and a two-hour laboratory per week.

Py 120 PHYSICS I. Cat. 1. 4 hrs. Prerequisite: One year of calculus which may be taken concurrently; recommended for physics and mathematics majors.

Py 121 PHYSICS II. Cat. 1. 4 hrs. Prerequisite: Py 120.

Py 120 — introduction to classical physics with emphasis on fundamental principles and conservation laws; topics include Newtonian mechanics and heat; three lectures and one two-hour laboratory per week.

Py 121 — continuation of Py 120; properties of the electro-magnetic field and wave phenomena; three lectures and one two-hour laboratory per week.

Py 201 MATHEMATICAL PHYSICS I. Cat. 1. 3 hrs. Prerequisites: none.

Py 202 MATHEMATICAL PHYSICS II. Cat. 1. 3 hrs. Prerequisite: Py 201.

Py 201 — applied mathematics for students majoring in science or mathematics; series, expansions, use of complex numbers, determinants, and matrices, partial derivatives and multiple integrals; three lectures per week.

Py 202 — continuation of Py 201; vector analysis; Fourier series, ordinary differential equations; three lectures per week.

Py 203 MATHEMATICAL PHYSICS III. Cat. 3. 3 hrs. Prerequisite: Py 202.

Py 204 MATHEMATICAL PHYSICS IV. Cat. 3. 3 hrs. Prerequisite: Py 203.

Py 203 — calculus of variations, special functions of physics, coordinate transformations, and functions of a complex variable; three lectures per week.

Py 204 — continuation of Py 203; series; solutions of differential equations, integral transforms, partial differential equations, probability; three lectures per week.

Py 210 MECHANICS I. Cat. 2. 4 hrs. Prerequisites: Py 121, Ma 211, and Py 201 which may be taken concurrently.

Py 211 MECHANICS II. Cat. 2. 4 hrs. Prerequisite: Py 210.

Py 210 — kinematics and dynamics of point masses, the conservation laws, motion of a system of particles, special theory of relativity, Lagrange's and Hamilton's equations; three lectures and one two-hour laboratory per week.

Py 211 — continuation of Py 210; continuum mechanics, mechanics of rigid bodies, theory of vibrations; three lectures and one two-hour laboratory per week.

Py 220 THERMODYNAMICS. Cat. 3. 3 hrs. Prerequisites: Py 121 or Py 116, and Py 201 which may be taken concurrently. Introduction to kinetic theory and statistical mechanics; three lectures per week.

Py 230 ELECTRICITY AND MAGNETISM. Cat. 2. 4 hrs. Prerequisite: Py 210 which may be taken concurrently.

Py 231 ELECTRICITY AND MAGNETISM II. Cat. 2. 4 hrs. Prerequisite: Py 230.

Py 230 — electric and magnetic properties of matter; determination of electrical potentials, field intensities, forces, and induction; the laws of electricity and magnetism in Maxwell's differential form; three lectures and one two-hour laboratory per week.

Py 231 — continuation of Py 230; solution of Laplace's equation, further consideration of Maxwell's equations, plane waves, guided waves, dipole radiation; three lectures and one two-hour laboratory per week.

Py 240 OPTICS. Cat. 2. 3 hrs. Prerequisites: Py 116 or Py 121. Reflection, refraction, difraction, interference and polarization; the wave model of light; three lectures per week.

Py 250 INSTRUMENTATION AND ELECTRICAL MEASUREMENT. Cat. 1. 3 hrs. Prerequisites: none. Electricity and electrical circuits, electronic theory and instrumentation; transducer response in scientific measurements; electronic measurement components and systems; operational amplifiers and integrated circuits; control elements and recording devices; two two-hour lecture/labs per week.

Py 300 INVESTIGATION OF SPECIAL TOPICS IN PHYSICS. Cat. 3. 1-3 hrs. Prerequisite: Consent of Instructor. Guided-study course which offers an opportunity to make an in-depth study of a special topic in physics as determined by needs and interest of the individual student.

Py 310 MODERN PHYSICS. Cat. 2. 3 hrs. Prerequisites: One year of physics and one year of calculus. The atomic nature of matter, special relativity, atomic models, the wave nature of matter, and radioactivity; three lectures per week.

Py 320 QUANTUM MECHANICS. Cat. 3. 3 hrs. Prerequisite: Py 231. The uncertainty principle, wave-particle duality, the Schrodinger equation, probability amplitudes, and applications to one-dimensional problems; three lectures per week.

Py 330 SENIOR PHYSICS LABORATORY. Cat. 2. 1 hr. Prerequisites: Py 231 or consent of Instructor. Laboratory work designed to meet the individual needs of students; experiments will be selected from electro-magnetism, optics, and modern physics; one three-hour laboratory period per week.

## Natural Science Major Requirements

This major is an interdepartmental program, administered through the Department of Physics, and structured through an advisory committee consisting of representatives from the following departments: biology, chemistry, geography, mathematics and physics. The program is designed to give a broader view of the sciences than is usually obtained in a traditional undergraduate

major in a single science. Students electing this major should be aware that a lack of depth in a single science will usually limit the opportunities for graduate study in a single science. The major is ideally suited for the preparation of science teachers in the areas of general science, earth science, and physical science. Concentration in mathematics, computer science, and environmental science may be arranged.

A minimum of 38 semester hours is required for this major. The student must choose courses from the offerings of the above mentioned departments to provide the following minimum distribution: Two semesters of approved mathematics, four semesters in any one science, and two semesters in each of any other two sciences.

## Recommended Program for Natural Science Majors (B.A. / B.S.)

### FRESHMAN

Fall Semester

Ma 110 College Algebra or
Ma 210 Calculus I

General Physics I or Physics I

Life Science Concentration
Bi 151 General Botany

Earth & Space Science Concentration
Ge 101 Physical Geography

Computer Science Concentration
Cs 150 Introduction to Computer Science

Distribution Elective

Spring Semester

Ma 120 Trigonometry or
Ma 211 Calculus II

General Physics II or Physics II

Life Science Concentration
Bi 152 General Zoology

Earth & Space Science Concentration
Ge 220 Geology II

Computer Science Concentration
Cs 160 Computer Program & Fortran IV

Distribution Elective

### SOPHOMORE

During the second year, students should complete the natural science recommended core requirements — six one semester courses from the following:

Life Science Concentration
General Botany
General Zoology
General Chemistry I & II

Physical Science
General Chemistry I & II
Calculus I & II

Earth & Space Science
Physical Geography
Geology I
General Chemistry I & II

Computer Science
Introduction to Computer Science
Computer Program & Fortran IV
Science Electives

### JUNIOR & SENIOR

Because of the nature of the natural science major, the student is well-advised to plan his program of studies in natural science at these levels with the consultation of his/her Faculty Advisor.

## DEPARTMENT OF NURSING

The Baccalaureate Degree in Nursing Program is proposed to meet the increasing needs for professional nurses and to provide academic opportunities for the nursing personnel presently employed in the field. It is a generic program in nursing that will meet the needs of secondary school graduates as well as those individuals who are graduate of Diploma and Associate Degree Nursing Programs already licensed as registered nurses. The major in nursing meets the requirements for Registration in Nursing by the Commonwealth of Massachusetts and for the requirements of a Bachelor of Science Degree from the college. It is expected that professional nurses in this program will develop their potential and become enlightened citizens who will function as an integral and vital part of the health care system which will contribute to a better human society.

Requirements for students in this program include successful, sequential completion of the recommended program for nursing majors as specified in the diagram below.

## Recommended Program for Nursing Majors

### FRESHMAN

| Fall Semester | Spring Semester |
|---|---|
| Humanities Elective | Humanities Elective |
| General Psychology I | Introduction to Sociology |
| Human Anatomy & Phsiology I | Human Anatomy & Physiology II |
| Nursing I | Nursing I |
| Physical Education | Physical Education |

### SOPHOMORE

| Fall Semester | Spring Semester |
|---|---|
| Introduction to Chemistry I | Introduction to Chemistry II |
| Fine Arts Elective | Fine Arts Elective |
| Child Growth & Development | Cultural Anthropology |
| Nursing II | Nursing II |
| Physical Education | Physical Education |

### JUNIOR

| Fall Semester | Spring Semester |
|---|---|
| Microbiology | Pathophysiology |
| Community Health Seminar | Community Health Seminar |
| Nursing III | Nursing III |

### SENIOR

| Fall Semester | Spring Semester |
|---|---|
| Introduction to Statistics | Nursing V |
| Senior Seminar | Independent Study |
| Nursing IV | Senior Seminar |

## *COURSE DESCRIPTIONS*

Nu 100 NURSING I. Cat. 1. 5 hrs. Prerequisite: Consent of department.

Nu 101 NURSING I. Cat. 1. 5 hrs. Prerequisite: Consent of department.
A two-semester beginning course emphasizing the principles underlying nursing care; understanding the basic physical, psycho-social and safety needs of all persons and the nursing interventions applicable to meeting these needs; preventive aspects of health care are included and emphasis is on meeting the needs of the noncritically ill in a variety of settings.

Nu 200 NURSING II. Cat. 1. 5 hrs. Prerequisite: Consent of department.

Nu 201 NURSING II. Cat. 1. 5 hrs. Prerequisite: Consent of department.
This two-semester course builds upon the foundation of all previous courses and focuses on specific nursing intervention necessary to meet the changing needs of all age groups at various stages of the "wellness-illness continuum"; clinical experiences focus on the application of principles in planning and administering care to individuals and groups in a variety of settings.

Nu 300 NURSING III. Cat. 1. 10 hrs. Prerequisite: Consent of department.

Nu 301 NURSING III. Cat. 1. 10 hrs. Prerequisite: Consent of department.
This course, covering two semesters, is designed to apply basic concepts of public health, mental health and maternal-infant health to the care of individuals, families and groups served by community health agencies; emphasis will be on the process of nursing assessment, family-centered care, use of community resources, the nature and scope of modern public health practices, and the development of therapeutic relationships with selected persons in various treatment centers.

Nu 400 NURSING IV. Cat. 1. 9 hrs. Prerequisite: Consent of department. This course will explore in depth the concept of stress; opportunities to provide care for critically ill patients in stress and/or emergency situations.

Nu 500 NURSING V. Cat. 1. 12 hrs. Prerequisite: Consent of department. Designed to increase the student's competency in providing complex nursing care and to refine his/her leadership skills; clinical practice in an area of his/her choice focuses on the professional's role in assessing, planning, organizing and evaluating nursing care for indi-

vidual and groups of patients that is relevant and responsive to changing demands.

Nu 510 **INDEPENDENT STUDY.** Cat. 1. 3 hrs. Prerequisite: Consent of department. Independent study provides for supervised research whereby the student is responsible for the identification and resolution of a nursing problem; selected readings and research studies will be required.

Nu 520 **SENIOR SEMINAR I.** Cat. 1. 3 hrs. Prerequisite: Consent of department.

Nu 521 **SENIOR SEMINAR II.** Cat. 1. 3 hrs. Prerequisite: Consent of department.
A two-semester discussional seminar which will explore past and present trends in nursing; the influence of contemporary social, educational, political and economic developments in nursing; legal and ethical responsibilities; problems and issues in the profession today and their implications; professional organizations in nursing; and responsibilities of the professional nurse in relation to future goals.

## DEPARTMENT OF PHILOSOPHY

Philosophy at Worcester State College seeks to fulfill the overall purpose of providing the philosophical vision that is essential for establishing an interdisciplinary approach to education in line with the values and goals of a liberal arts college. It seeks specifically to demonstrate that philosophy as an academic discipline is integral to the education of the whole man through the civilization and cultivation of a critical and humane intelligence.

The objectives of philosophical instruction are two-fold: first, to acquaint the student with the major men and traditions of philosophy and the basic problems (political, social, moral and metaphysical) in the Ancient, Medieval, Modern and Contemporary periods; secondly, to introduce the student to the tools of philosophical inquiry in order to investigate their total experience, to develop their own philosophical point of view and to discover the meaning of their lives. Students may choose individual courses which will complement their programs, or may elect to minor in this subject.

### *COURSE DESCRIPTIONS*

Ph 100 **LOGIC, KNOWLEDGE AND EXISTENCE.** Cat. 1. 3 hrs. Prerequisites: none. Logic, the common method of the sciences; the rules of syllogistic reasoning intergrated with other forms of knowledge for a balanced human existence.

Ph 101 **INTRODUCTION TO PHILOSOPHY.** Cat. 1. 3 hrs. Prerequisites: none. Nature, purpose, problems of philosophy; to challenge the student in the development of his own philosophical perspective.

Ph 120 **PHILOSOPHY OF MAN: DIMENSION OF HUMAN EXISTENCE.** Cat. 1. 3 hrs. Prerequisites: none. Your body is definitely "you", but is that all? The self, the soul, consciousness, thinking, love, life, evolution, death, and immortality.

Ph 140 **ETHICS: THE MORAL DIMENSION OF MAN'S EXISTENCE.** Cat. 1. 3 hrs. Prerequisites: Ph 100 or Ph 101. Is life worth living? Problems of personal knowledge, judgement, conscience, freedom and action as applied to contemporary man and society.

Ph 200 **METAPHYSICS: THE PHILOSOPHY OF BEING, KNOWLEDGE AND GOD.** Cat. 1. 3 hrs. Prerequisites: Ph 100 or Ph 101. Origin and development of the metaphysical problems of being, knowledge and God in western philosophy.

Ph 210 **PHILOSOPHY OF RELIGION.** Cat. 1. 3 hrs. Prerequisite: Ph 100 or Ph 101. Mythical, natural and revealed problem of God; relationship of faith and reason, of theology and philosophy, of art and science from west to east.

Ph 220 **EXISTENTIALISM.** Cat. 1. 3 hrs. Prerequisites: Ph 100 or Ph 101. Origin of contemporary existentialism; the problems of existence, being, nothingness, subjectivity and freedom in such philosophers as Kierkegaard, Neitzsche, Jaspers, Heidegger, Marcel and Sarte.

Ph 230 **AMERICAN PHILOSOPHY.** Cat. 3. 3 hrs. Prerequisites: Ph 100 or Ph 101. Shaping of the American experience from Plymouth Rock to acid rock; Emerson, James, Pierce, Royce, Dewey, Whitehead, Hoffer, Marcuse.

Ph 240 **HISTORY OF ANCIENT AND MEDIEVAL PHILOSOPHY.** Cat. 1. 3 hrs. Prerequisites: none. From wonder, myth and poetry to the scholastics; Homer, Plato, Augustine to Boethius, Scotus, Aquinas.

Ph 245 **HISTORY OF MODERN AND CONTEMPORARY PHILOSOPHY.** Cat. 1. 3 hrs. Prerequisite: Ph 240. Search and reaction to new absolutes — Descartes, Locke, Hume, Kant and Hegel; impact of modern science-Comte, Husserl, Kiekegaard, Sarte, Ayer, Quine, and Whitehead.

Ph 500 **SEMINAR: TOPICS IN PHILOSOPHY.** Cat. 3. 3 hrs. Prerequisites: none. Specific subject matter chosen by department in conjunction with students's needs and demands.

In 300 **EVOLUTION OF ARTS AND IDEAS.** Cat. 3. 3 hrs. Prerequisites: Juniors and Seniors only.

In 301 **EVOLUTION OF ARTS AND IDEAS.** Cat. 3. 3 hrs. Prerequisites: Juniors and Seniors only.
The bringing together of ideas and concepts generally separated into specialized areas; working an understanding of "the whole" of civilization while probing its "meaning" as expressed through various media, literature, music, mathematics, science, etc.; six to ten departments represented in offering of course; students may elect either or both semesters; lecture seminars and student projects required.

In 350 **INDEPENDENT, MULTIDISCIPLINARY STUDY.** Cat. 1. 3 hrs. Prerequisites: none.

In 351 INDEPENDENT, MULTIDISCIPLINARY STUDY. Cat. 1. 3 hrs. Prerequisites: none.
The purpose of this course is to make possible independent, multidisciplinary study for the student, with several teachers and students, in free and open situations; projects will be based upon student interests and oriented towards total contexts of knowledge and experience, from the social, philosophical, scientific and aesthetic realms of meaning; teacher-student communication will be an essential part of the course.

## DEPARTMENT OF PSYCHOLOGY

The undergraduate offerings in psychology are designed to acquaint the student with basic theories, principles and laws of human behavior. The undergraduate program emphasizes the material that is foundational to all psychology, and offers the student an educational background for the wide variety of vocational opportunities.

Students enrolled for the major in psychology begin with a core of courses which serve as a foundation for later course work in content areas such as developmental psychology, social psychology, psychology of learning, perception and thinking, motivation and emotion, and abnormal psychology. This program is supplemented with course work in the humanities, biological sciences, social sciences, physical sciences and mathematics.

A Psychology Honors Program is being designed for those exceptionally able students who wish, in their major, to pursue an intensive and somewhat independent study of psychology and to engage in psychological research. It is directed toward the integrating of a substantial body of theoretical and factual information, and the development of creative scholarly skills, by independent study, seminars and extended research experience. Particular emphasis is laid on the planning of an individual program for the student that will combine his specialized interests with the body of basic general psychology essential for all students who are undertaking their first two years of study in the field. The plan will include arrangements for continuous supervised research activities from the beginning of the student's Junior year until the end of the Fall semester of his Senior year, at which time he will submit a written report of his work as a thesis.

Students planning to continue for graduate study should select their undergraduate course work carefully with their Advisor to assure meeting prerequisites for advanced study.

### Psychology Major Requirements

Required for a major degree in psychology are the following courses: General Psychology I-II, Psychological Methods, Historical and Contemporary Systems and Psychological Statistics. Elective Psychology courses shall make up the remainder of the student's program. A total of 36 semester hours in psychology is required.

### Recommended Program for Psychology Majors (B.A.)

FRESHMEN

| Fall Semester | Spring Semester |
|---|---|
| General Psychology I | General Psychology II |
| Introduction Sociology I | |

SOPHOMORES

| Fall Semester | Spring Semester |
|---|---|
| Psychological Statistics | Psychological Methods (Exam) |
| History and Systems of Psychology | Theories of Personality |

JUNIORS AND SENIORS

(Psychology – Model)

*There is no suggested model for Majors in the Department of Psychology after the Sophomore year. Each student will have the privilege of studying in that area of psychology which interests him most. His professional aims and objectives will be accomplished with the aid of his Advisor, the consortium, and perhaps practical experience. Students planning to continue for graduate study should select their undergraduate course work carefully with their Advisor to assure meeting prerequisites for advanced study.*

## Recommended Program for Psychology Minors

General Psychology I & II followed by 4 psychology electives.

## *COURSE DESCRIPTIONS*

Ps 110 GENERAL PSYCHOLOGY I. Cat. 1. 3 hrs. Prerequisites: none.

Ps 111 GENERAL PSYCHOLOGY II. Cat. 1. 3 hrs. Prerequisites: Ps 110.

Ps 110 — psychology as a behavioral science; emphasis on history, scientific method, brain, nervous system, maturation, development, learning, motivation, and perception.

Ps 111 — continuation of Ps 110; orientation to psychology as introduced in General Psychology I; emphasis upon emotion, behavior disorders and topics in the social milieu.

Ps 113 HISTORY AND SYSTEMS OF PSYCHOLOGY. Cat. 1. 3 hrs. Prerequisite: Ps 110. Historical and systematic analysis of psychological thought and points of view; schools or systems of psychology, such as structuralism, functionalism, behaviorism, hormic, psychoanalytic and Gestalt psychology.

Ps 114 PSYCHOLOGICAL STATISTICS. Cat. 1. 3 hrs. Prerequisite: Ps 110. Statistical principles and techniques as applied to psychological data; the selection of procedures appropriate to the problems, interpretation of outcomes, data tabulation and reduction, measured of central tendency and variability, correlation and prediction, association and analysis of variance.

Ps 115 PSYCHOLOGY OF MARRIAGE. Cat. 3. 3 hrs. Prerequisites: none. The psychology of basic needs and motives of individuals intending to marry are examined; psychological problems of courtship, mate selection, marital and parental roles as well as problems of contemporary family life are explored and analyzed.

Ps 116 PSYCHOLOGY OF HUMAN SEXUALITY. Cat. 3. 3 hrs. Prerequisite: Ps 110. Consideration of the wide range of human sexuality and sexual behavior including: self acceptance and self image, sexual development, sex role, social attitudes, sexual attraction and awareness, and various forms of sexual interaction — emphasis on developing insight into sexuality as a foundation of personality and sexual interaction as human communication.

Ps 120 CHILD PSYCHOLOGY. Cat. 3. 2 hrs. Prerequisite: Ps 110. The mental, emotional, social and physical developments from conception to early adolescence;critical and technical review of research and theories.

Ps 130 ABNORMAL PSYCHOLOGY. Cat. 1. 3 hrs. Prerequisite: Ps 110. The etiology, dynamics and treatment of psychopathology and its relationship to normal personality; contemporary approaches as well as traditional categories of psychopathology.

Ps 150 SOCIAL PSYCHOLOGY. Cat. 1. 3 hrs. Prerequisite: Ps 110. The individual in social situations; the learning of role behavior with an emphasis on the socialization process, personality, culture, attitudes, and motives.

Ps 160 THEORIES OF PERSONALITY. Cat. 1. 3 hrs. Prerequisite: Ps 110. Comprehensive treatment of major personality theories; emphasis on the great controversies, biographies of outstanding personality theorists, psychological schools and systematic theories.

Ps 171 PSYCHOLOGY OF ADOLESCENCE. Cat. 1. 3 hrs. Prerequisite: Ps 110.

Ps 172 PSYCHOLOGY OF ADOLESCENCE. Cat. 1. 3 hrs. Prerequisite: Ps 110.

The mental, emotional, social and physical changes of the adolescent; special emphasis on peer group and school influences on development and the contemporary problems of adolescence.

Ps 180 PSYCHOLOGY OF LEARNING. Cat. 1. 3 hrs. Prerequisite: Ps 110. Principles and theories of learning; emphasis on experimental findings and the position of learning in general theories of behavior.

Ps 190 CHILD GROWTH AND DEVELOPMENT. Cat. 1. 3 hrs. Prerequisite: Ps 110. The human organism from conception through adolescence; sequential patterns and characteristics of personality development vis-a-vis physical growth; required of elementary education majors.

Ps 200 PSYCHOLOGICAL METHODS. Cat. 1. 3 hrs. Prerequisite: Ps 100. Questions about behavior are formulated and then tested through experiments; lectures and laboratory experiences used to expose psychology majors to the procedures of designing, conducting, and reporting experiments.

Ps 210 SENSATION AND PERCEPTION. Cat. 3. 3 hrs. Prerequisite: Ps 110. Problems and methods in the study of selected sensory and perceptual processes; contemporary theory and research.

Ps 220 MOTIVATION. Cat. 3. 3 hrs. Prerequisites: Ps 110, Ps 111 recommended. Primary and learned motivation, conditions that arouse, sustain and direct behavior; topics include frustration, conflict, stress, instinct, motives, biological and acquired basis of emotions.

Ps 230 PHYSIOLOGICAL PSYCHOLOGY. Cat. 3. 3 hrs. Prerequisite: Ps 110. Psychobiological problems; current physiological research in the fields of emotion, motivation and learning; extensions of physiological methods into other psychological areas.

Ps 240 CHILD BEHAVIOR AND DEVELOPMENT. Cat. 3. 3 hrs. Prerequisite: Ps 110. Psychological developments of the child, including theory, methods, and data of child behavior studies; special problems of control and measurement.

Ps 250 EXISTENTIAL HUMANISTIC PSYCHOLOGY. Cat. 1. 3 hrs. Prerequisites: Ps 110, Ps 111. Humanistic view of psychology which emphasized the existential phenomological approach of human behavior; personality and psychotherapy.

Ps 300 PSYCHOLOGY OF ADJUSTMENT. Cat. 3. 3 hrs. Prerequisite: Ps 110. Development of health and personality of the student, the family and the teacher; contributions of constitutional and environmental factors to adjustive behavior and the establishment of values as applied to teaching and life; techniques for appraising the degree of adjustment; observation and field trips to social agencies and institutions are arranged.

Ps 310 ADVANCED EXPERIMENTAL PSYCHOLOGY. Cat. 3. 3 hrs. Prerequisites: Ps 110, Ps 200. Laboratory procedures and techniques for studying behavior; data, theories and methods of investigation; selected projects carried out by members of the class.

Ps 320 PSYCHOLOGY OF SUBNORMAL AND UNADJUSTED CHILDREN. Cat. 2. 3 hrs. Prerequisite: Ps 110. The psychology and treatment of children having superior or inferior intellectual ability, defective vision, hearing, speech and physical handicaps; the mental equipment of individual children, different degrees of retardation and their causes, and disorders of behavior which frequently are concommitant; the psychological bases of suitable curriculum for mentally retarded children evaluated.

Ps 340 PSYCHOLOGY OF THE CULTURALLY DEPRIVED. Cat. 1. 3 hrs.. Prerequisite: Ps 110. Detection of the culturally deprived child in the regular classroom, what his needs are and how they may be met; a practical approach developed for adjusting instructions to the individual pupil; a study of the visual and manipulative devices that can be used to the advantage of the culturally deprived; special stress placed on appropriate methods and materials.

Ps 350 INTRODUCTION TO PSYCHOMETRICS. Cat. 1. 3 hrs. Prerequisite: Ps 110. Instruments and methods employed in the evaluation of the psychological factors of human beings; current instruments designed to measure intelligence, aptitude, interest and personality.

Ps 410 INTRODUCTION TO THE STUDY OF EXCEPTIONAL CHILDREN. Cat. 3. 3 hrs. Prerequisite: Ps 110. Etiology, classification, and problems of children who have physical disability, mental retardation, emotional or social difficulties, giftedness; the home, school and community are considered in relation to the child's mental health.

Ps 420 CLINICAL PSYCHOLOGY. Cat. 3. 3 hrs. Prerequisite: Ps 110. Various approaches to the treatment of emotional disorders; the psychoanalytic approach, the behavior modification approach, and the client-centered approach; case studies will be presented and discussed in relation to the various approaches.

Ps 500 INDEPENDENT STUDY IN PSYCHOLOGY. Cat. 3. 1-3 hrs. Prerequisite: Consent of Instructor. The student will pursue an area of special interest through research or field work experience under close supervision of a faculty member.

Ps 600 INDIVIDUAL & GROUP PSYCHOTHERAPY. Cat. 3. 3 hrs. Prerequisites: Ps 110, Ps 111, Ps 180, Ps 300, Ps 420. A study of leading theoretical and eclectic approaches to individual and group psychotherapy; qualifications and personal qualities of the therapist.

Ps 601 GROUP DYNAMICS. Cat. 3. 3 hrs. Prerequisites: Ps 110, Ps 111. The principles of group dynamics, with implications for group psychotherapy; laboratory practice in small groups, with analysis of the dynamics of the individual affecting and being affected by the group; emphasis on necessity for sensitivity in human relationships as the psychologist works with groups in the solution of personal and/or social problems.

Ps 602 SEMINAR IN DEVELOPMENTAL PSYCHOLOGY. Cat. 3. 3 hrs. Prerequisites: Ps 110, Ps 111, Ps 190, Ps 171. An advanced course dealing with developmental patterns and the continuities and discontinuities of physical, mental, and emotional development throughout the life span; consideration will be given to various theoretical approaches and research techniques as well as the study of current research findings; the entire course will emphasize independent work and the opportunity for personal observation and research.

# DEPARTMENT OF SOCIOLOGY

The sociology curriculum is designed to give all students a proper frame of reference for social participation and social evaluation. It is also explicitly intended to be a basic program for those persons who seek to make the field of sociology their life's work. It is an open-ended program designed to meet the needs of students in contemporary society.

## Sociology Major Requirements

Thirty semester hours in sociology is required including the following courses: Introductory Sociology I, Social Science Research, and an ancilliary required set of Logic (offered by Philosophy Department). If the student intends to pursue graduate education in the field of sociology he should plan to elect Philosophical Foundations of Social Theory as one of his courses. The remainder of his program is chosen with the advice and consent of his Faculty Advisor.

## Recommended Program for Sociology Majors (B.A.)

### FRESHMEN

| Fall Semester | Spring Semester |
|---|---|
| History of Western Civilization I | History of Western Civilization II |
| Introductory Sociology I | Contemporary Social Problems |

### SOPHOMORES

| Fall Semester | Spring Semester |
|---|---|
| Sociology Elective | Social Science Research |
| Logic | |

JUNIORS

| Fall Semester | Spring Semester |
|---|---|
| Sociology elective | Sociology elective |
| Sociology elective | Sociology elective |

SENIORS

| Fall Semester | Spring Semester |
|---|---|
| Social Theory or elective | Independent Studies |

## Recommended Program for Sociology Minors

Introductory Sociology I, and electives of which at least five must be 200 level courses.

## *COURSE DESCRIPTIONS*

So 100 INTRODUCTORY SOCIOLOGY. Cat. 1. 3 hrs. Prerequisites: none. The formal study of the nature of group behavior and social interaction through the analysis of the structure and values of human groups.

So 110 COURTSHIP AND MARRIAGE IN AMERICA. Cat. 1. 3 hrs. Prerequisites: none. The study of American customs of courtship and marriage; attention will be given to past and present marital laws, theories of mate selection, marital prediction, and marital roles.

So 120 CULTURAL ANTHROPOLOGY. Cat. 1. 3 hrs. Prerequisites: none. Modern cultural anthropology with cross-cultural emphasis on the human capacity for culture, social system, technology, ideology and significant aspects of the process of fieldwork.

So 130 EXPLORATION OF RACE AND ETHNICITY. Cat. 3. 3 hrs. Prerequisites: none. Basic concepts of development of ethnic and racial relations; deals primarily with the contemporary American scene.

So 200 CONTEMPORARY SOCIAL PROBLEMS. Cat. 1. 3 hrs. Prerequisite: So 100. A critical analysis of the social, political, urban and industrial changes in American society, introducing specific problems of contemporary American life.

So 201 SOCIAL STRATIFICATION. Cat. 1. 3 hrs. Prerequisite: So 100. Recurrent patterns of inter-group contact, differentiation, ranking and evaluation; the theories and concepts which explain the development process of open and closed societies, the characteristics of stratification systems, and their pervasive influence on social institutions.

So 202 SOCIOLOGY OF EDUCATION. Cat. 3. 3 hrs. Prerequisite: So 100. Study of education, emphasizing the social process as well as the institutional structure; social roles of teachers, administrators, pupils, the group basis of education, and community influence.

So 204 THE SOCIOLOGY OF DEVIANCE. Cat. 3. 3 hrs. Prerequisite: So 100. Social causes and apparent consequences of deviant behavior; the social determinants of the behavioral responses which are considered to be deviations within particular social contexts.

So 205 SOCIAL SCIENCE RESEARCH METHODS. Cat. 1. 3 hrs. Prerequisite: So 100. Designed to prepare students majoring in sociology and economics for undertaking research projects; research methodology and presentation of data; field problems used as vehicle of instruction.

So 206 FORMAL ORGANIZATIONS. Cat. 3. 3 hrs. Prerequisite: So 100. Discussion of the various sociological theories in formal and complex organizations; discussion on the structure, function and communication with organizations; students will conduct case studies of organizations.

So 207 SOCIOLOGY OF THE FAMILY. Cat. 3. 3 hrs. Prerequisite: So 100. A comparative cross-cultural approach to the study of family systems, with an emphasis upon the effects of social change.

So 208 JUVENILE DELINQUENCY. Cat. 3. 3 hrs. Prerequisite: So 100. An examination of the social and legal phenomena surrounding youthful offenses and offenders; the postulates of sociological studies and theories, both classical and contemporary, of the conditions, causes, consequences, and correctional aspects of this form of deviant behavior will be considered in the context of community responses, popular and procedural, past and present, to this problem.

So 209 COLLECTIVE BEHAVIOR. Cat. 3. 3 hrs. Prerequisite: So 100. A study of the interactive processes by which new norms and forms of social organization emerge in the crowd, the public, and the social movement; attention will be given to those forms of collective behavior that are most productive of social change.

So 210 MEDICAL SOCIOLOGY. Cat. 3. 3 hrs. Prerequisite: So 100. This course will deal with the social organization of health agencies (e.g., hospitals, VHA, nursing homes, clinics, etc.) and the patterns of interaction within which doctors, nurses, patients, and staff function; discussion of the attitudes held by the medical staff toward terminal patients and death in the hospital setting; an analysis of the social-psychological processes of becoming a patient, the processing of the patient within the health agency, and the career of the patient; emphasis on the interpersonal relations between doctors, nurses, hospital staff, patients, and patients' families within the hospital setting and outside it.

So 300 URBAN SOCIOLOGY. Cat. 3. 3 hrs. Prerequisites: So 100 and one other content course. The history of the city; the urban phenomena including the social psychology of man in the city, the city as a social system and urban problems connected with social planning in urbanized areas; the contemporary American metropolis with some attention to cross-cultural urban phenomena as well.

So 301 SOCIAL PSYCHOLOGY. Cat. 3. 3 hrs. Prerequisites: So 100 and one other content course. Dynamics of small group involvement and its effect on the individual's psychology as shaped by environmental influences.

So 302 PHILOSOPHICAL FOUNDATION & SOCIAL THEORY I. Cat. 3. 3 hrs. Prerequisites: So 100 and one other content course. Content and historical significance of ideas which have influenced the development of social thought and theory; ideologies which serve as the basis of modern society.

So 303 STATISTICAL ANALYSIS. Cat. 1. 3 hrs. Prerequisite: So 100. Basic tools of statistical analysis appropriate to research in the social sciences; topics include measures of central tendency, hypotheses testing, time series, index numbers, regression and correlation.

So 304 THE PHILOSOPHICAL AND SOCIOLOGICAL EXPLORATION OF RELIGION. Cat. 3. 3 hrs. Prerequisites: So 100 and another sociology or philosophy course. Designed as a comparative study of religious institutions and systems of belief with emphasis on the mystical and natural components of the religious phenomena.

So 305 A/B FIELD WORK. Cat. 3. Prerequisites: So 100 and two other content courses. Introducing students to field work and collection of data based on participant observation or other observational methods, or on conversational interviewing methods; the literature on techniques of field work and methodological problems of on-going field observations.

So 400 PHILOSOPHICAL FOUNDATIONS & SOCIAL THEORY II. Cat. 3. 3 hrs. Prerequisites: So 302. The historically distinct and fundamental ideas of the constitutive elements of sociological tradition; theories which form the intellectual background of contemporary social analysis.

So 401 CONTEMPORARY SOCIAL THEORY. Cat. 3. 3 hrs. Prerequisite: So 302. An analysis of the analytic devices, conceptual schemes and models used by contemporary theorists; the course will emphasize structural sociology and the on-going process of theory development.

So 500 INDEPENDENT STUDY IN SOCIOLOGY. Cat. 3. 1-3 hrs. Prerequisite: Consent of Instructor. Open to Senior sociology majors only.

# SPECIAL PROGRAMS

## MARINE SCIENCES PROGRAM

The Massachusetts Maritime Academy, in cooperation with other Massachusetts State Colleges and the Cape Cod Community College, offers a series of college-level, project-oriented courses in the Marine Sciences at its Buzzard Bay water site campus. This approach takes advantage of the diverse capabilities and interests of the several college facilities in seeking to complement related courses at participating colleges. Courses may be credited toward programs in biology, geology, chemistry, physics, geography, environmental sciences and education at participating colleges. The oldest, continuously operating Maritime Academy in the United States offers the newest buildings and equipment for marine science programs, including classrooms, "wet" and conventional labs, air-conditioned library, specialized marine equipment, small craft, vehicles, dormitories, dining hall and extensive recreational facilities.

For further information regarding admission and expenses, please contact Dr. Harold L. Chapman, Worcester State College, Worcester, Massachusetts 01602.

## NURSING EDUCATION (Diploma)

The Board of Trustees (Division of State Colleges) in 1969 voted "that a cooperative arrangement be established at Worcester State College to offer a one-year program of study for nursing students in the four Worcester hospitals now maintaining diploma programs, effective in the Fall of 1970." Hospitals participating in this program include: City Hospital; Memorial Hospital; St. Vincent Hospital; Worcester Hahnemann Hospital.

Detailed information concerning these programs may be obtained by contacting the Director, School of Nursing, at any of the four cooperating hospitals.

## THE PRE-LEGAL PROGRAM

### A Major in History With Special Preparation for Law School

The new pre-legal program at Worcester State College is designed to give the student who is planning to enter law school one of the richest most solid and exciting four-year preparations of any institution. The pre-legal program at Worcester State:

Offers an interdisciplinary, cross-department core program consisting of history, political science, chemistry, physics, biology, mathematics, sociology, economics, psychology, and accounting;

Includes within this core program a minimum of 12 hours in constitutional history and a minimum of 15 hours of political science;

Enables the student to major in history and minor in both political science and physical science or administrative studies;

Permits the student, in addition to his core program, to select the remainder of his required hours for the Bachelor of Arts degree from a wide variety of subjects;

Allows the student, during the first two years of undergraduate work to gather some insight into the work of attorneys so that judgement may be made as whether or not he wishes to make a career in the legal profession.

Places him in an environment that will aid him in adjusting to and getting the most out of his future law school subjects;

Stresses the opportunity to cross-register through the Worcester Consortium for Higher Education at various other area institutions;

Develops personal abilities by providing students with proper counseling both in the general area of education and in legal education;

Provides the type of background that encourages the sort of independent thinking that has characterized the great lawyers of the past.

Should you wish further information, please contact: Dr. Robert M. Spector, Esq., Pre-Legal Advisor, Department of History and Political Science, Worcester State College.

A student who is interested in medicine, dentistry, veterinary medicine, optometry, podiatry, or osteopathy should consult both his major Advisor and a member of the Pre-Medical and Pre-Dental Advisory Committee early in his Freshman year. A student who is interested in "paramedical specialities" or graduate research in the allied health field should also consult a member of the Pre-Medical and Pre-Dental Advisory Committee. Regardless of his major, the student would be well-advised to elect General Chemistry I and II, and Biology I and II during his Freshman year. The WSC Pre-Medical and Pre-Dental Advisory Committee is composed of the following members: Dr. Carol Chauvin, Department of Biology; Dr. Alan Cooper, Department of Chemistry; Dr. Marlin Kreider, Department of Biology; Dr. Estelle Zoll, Department of Chemistry.

## PRE-MEDICAL/PRE-DENTAL PROGRAM

Worcester State College offers a program for students who are interested in applying to a Medical or Dental School. These schools prefer the collegiate applicant who has excelled in his field of interest, whether it be in the sciences or in the humanities, and who possesses a sound scientific foundation. Whatever his major, it is expected that he will have acquired a broad, liberal education.

Nearly all medical and dental schools require one year of each of the following with laboratory; General Chemistry, Organic Chemistry, Biology, and Physics. In addition, many schools require two years of a modern foreign language, one year of English (including composition) and mathematics through calculus. It is advisable that these courses be completed by the end of the Junior year in order that they may be properly evaluated by either a medical or dental school. In addition to these basic courses, a number of medical schools require one or more additional courses, such as, Comparative Vertebrate Anatomy, Embryology, Genetics, Physical Chemistry and Quantitative Analysis.

## URBAN STUDIES

Worcester State College offers as one of its special programs an academic minor in urban studies. The urban studies minor is multi-disciplinary and draws upon courses offered in art, economics, education, geography, history-political science, psychology, and sociology.

The purpose of the Urban Studies Program is to provide students with insight into the process of urbanization, the phenomenon of urbanism, the growth of cities, and urban problems. Courses approved for the minor are both theoretical and experiential in nature.

A minor in urban studies is accomplished by taking between six and eight courses from the list of approved course offerings. Students are urged to select courses from at least three academic disciplines and to balance those of a theoretical nature with others emphasizing practical experience.

Students contemplating careers in government service, planning, environmental control, social work, urban teaching and the like are urged to explore the possibilities offered by an urban studies minor. Information can be obtained by contacting Mr. Bernard J. Guarini, Coordinator of Urban Studies. An appropriate program in urban studies

will be developed for interested students in consultation with the student's major department.

In addition to the urban studies minor, Worcester State College is presently planning a new academic major in Urban and Multi-Ethnic Affairs. It is hoped this program will be available in 1974 - '75.

## Approved urban studies courses:

Ar 220 Visual Conservation;
Ar 230 Architecture and City Planning;
Ec 202 Labor Economics;
Ec 204 Public Spending and Taxation;
Ec 208 Urban Economics;
Ec 212 Development Planning and Regional Economics;
Ec 220 Economics of the Environment;
Ec 400 Contemporary American Problems;
Ed 140 Urban Education;
Ed 150 Education and Race Relations;
Ed 160 Social Action Education Practicum;
Ge 250 Hydrology;
Ge 430 Urban Geography;
Hi 207 American Urban History;
Hi 208 The Immigrant in American History;
Hi 209 Afro-American History;
Hi 270 The Black Experience in Contemporary America;
Po 115 State and Local Government;
Ps 150 Social Psychology;
Ps 340 Psychology of the Culturally Deprived;
So 130 Explorations in Race and Ethnicity;
So 201 Social Stratification;
So 202 Sociology of Education;
So 204 The Sociology of Deviance;
So 209 Collective Behavior;
So 300 Urban Sociology;
So 301 Social Psychology.

# ADMINISTRATION

JAMES R. ALBERQUE
Assistant Dean of Students, 1973
B.S. Saint Bonaventure U., M.Ed. U. of Cincinnati

KENNETH BARTON
Chief Accountant, 1971
New England School of Accounting

WILLIAM BUTLER
Bursar, 1953
B.S. in B.A. Clark University

ROBERT A. DEVLIN
Director of Athletics, 1970
B.S. Holy Cross College, Ed.M. Boston University

JOHN R. DOWLING
Registrar, 1966
B.S. in Ed., Ed.M. Worcester State College

JOHN F. EAGER
Director of Program of Continuing Education, 1952
B.S. Loyola University, Ed.M. Worcester State College

WALTER C. FALLON
Director of Placement, 1970
B.S. Holy Cross College, Ed.M. Fitchburg State College

LEONARD F. FARREY
Director of Counseling Services, 1965
B.S. in Ed., Ed.M. Worcester State College

RICHARD J. GILMARTIN
College Counselor, 1971
M.A. Fordham University

CHARLES T. GOLDSTONE
Associate Director for Communication Services — LRC, 1972
B.S. University of Pittsburgh, M.Ed. Boston University

LOREN GOULD
Director of Institutional Studies, 1959
A.B., A.M. Clark University

ROSE D. GUERIN
Director of Communication Disorders Clinic, 1967
A.B. Marietta College, M.A. Boston University

ROBERT T. JONES
Director of Learning Resources Center, 1971
B.S., M.A., Ph.D. Syracuse University

PAUL JOSEPH
Manager of Recreation Facilities, 1971
B.A. Worcester State College

ROBERT E. LEESTAMPER
President, 1970
A.B. University of Minnesota, A.M. Columbia University, Ed.D. Harvard University

ARNOLD MELNICK
Director of Fiscal Affairs, 1972
B.A., M.S. New York University, M.B.A. Drexel Institute, Ph.D. University of Oklahoma

JOSEPH A. MINAHAN
Director of Planning and Development, 1961
A.B. Boston College

EDNA T. O'KEEFE
College Nurse, 1966
R.N. Worcester City Hospital

PAUL F. O'NEIL
Associate Director of Program of Continuing Education, 1963
B.S. Holy Cross College, B.S., Ed.M. Worcester State College

BRUCE PLUMMER
Associate Director for Library Services, 1971
B.A. Ohio Wesleyan University, M.A. Kent State College

MAURICE POIRIER
Coordinator of Publications, 1971
B.A. Worcester State College

THEODORE PROVO
Director of Consortium Activities & Grants Administration
B.S. in Ed., Ed.M. Worcester State College, Ph.D. Kansas State Univeristy

PAUL F. REGAN
Superintendent of Buildings and Grounds, 1970

NOEL J. REYBURN
Vice President and Academic Dean, 1970
B.S. University of Southern California, M.A. Stanford University, Ed.D. University of California at Berkeley

JOSEPH P. SCANNELL
Director of Admissions, 1959
B.S. in Ed., Ed.M. Worcester State College

JAMES A. SCULLY
Dean of Students, 1972
B.A. Stetson University, M.A. Columbia University, Ed.D. University of Cincinnati

HELEN G. SHAUGHNESSY
Associate Academic Dean-Education, 1957
B.S. in Ed. Worcester State College, Ed.M. Boston University

RICHARD SINE
Director of Professional Experiences, 1971
B.A. St. John's Seminary, M.A. Boston University

PHILIP J. STEINKRAUSS
Assistant Academic Dean, 1971
B.A., M.A., Ph.D. Boston College

HERBERT H. TAYLOR
Director of Community Services, 1970
B.A. University of Minnesota

LLOYD P. WHEATON
Associate Dean of Students, 1965
A.B. Harvard College, M.A. Northeastern University

# FACULTY

## PROFESSOR EMERITUS

CARLETON E. SAUNDERS
Professor Emeritus, 1973
A.B. Western Michigan University, M.A. Columbia University, D.A.O. Staley College

## ADMINISTRATIVE STUDIES

ROBERT BURMEISTER
Assistant Professor of Administrative Studies-Health, 1972
B.S. North Illinois University, M.A., Ph.D. University of Iowa

WESLEY E. CORDWELL, JR.
Associate Professor of Administrative Studies, 1973
B.S. Salem State College, M.A. Boston University

ANDREW B. HAYNES, JR.
Associate Professor of Administrative Studies, 1973
B.M.E. General Motors Institute of Technology, M.S., Ph.D. Rensselaer Polytechnic Institute

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Professor of Administrative Studies, 1973
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DONALD D. KANE, Co-Director
Interim Co-Director of Administrative Studies, 1973
B.S. Long Island University, M.A. Columbia University

HAROLD T. MOODY, Co-Director
Interim Co-Director of Administrative Studies, 1973
B.S., M.B.A., Ph.D. University of California, Los Angeles

LAURENCE W. MURRAY, JR.
Assistant Professor of Administrative Studies, 1973
B.A. University of Northern Iowa, M.S. University of Missouri, Ph.D. Clark University

JOHN E. SCOLA
Associate Professor of Administrative Studies, 1973
A.B. Assumption College, J.D. New England School of Law, L.L.B. Portia Law School

## ART

DORIS M. CARTER, Chairman
Assistant Professor of Art, 1967
B.S. Massachusetts College of Art, M.A. San Jose State College, Ed.D. University of Massachusetts

JACQUELINE G. CASALE
Assistant Professor of Art, 1967
B.A. New York University, M.A. Tufts University

MARY T. DOLPHIN
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SANDRA KOCHER
Instructor of Art, 1970
B.A. Oberlin College, M.A. Stanford University

ELLEN V. KOSMER
Assistant Professor of Art, 1964
B.F.A. Massachusetts College of Art, M.A. Western Reserve University, Ph.M. Yale University

MICHEL MERLE
Assistant Professor of Art, 1971
B.A. Columbia University, M.A. Teachers College at Columbia University, M.A. Instituto Allende

## BIOLOGY

EDWIN A. BOGER
Assistant Professor of Biology, 1968
B.A. Valparaiso University, M.A. University of Connecticut

CAROL M. CHAUVIN
Professor of Biology, 1957
B.S. Good Counsel, M.S. SUNY-Albany, Ph.D. Boston University

JOHN F. EAGER
Associate Professor of Biology, 1952
B.S. Loyola University, Ed.M. Worcester State College

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Instructor of Biology, 1970
A.B. Suffolk University, M.S. University of New Hampshire, Ph.D. University of Rhode Island

PAUL A. HOLLE
Professor of Biology, 1957
B.A. Valparaiso University, M.S., Ph.D. Notre Dame University

MARLIN B. KREIDER
Associate Professor of Biology, 1970
A.B. Houghton University, M.S., Ph.D. University of Maryland

WILLIAM K. MASTERSON
Associate Professor of Biology and Supervisor of Student Teachers, 1958
A.B., M.A. M.A. Boston College

SURINDAR M. PARACER
Assistant Professor of Biology, 1970
B.S. Punjab University, M.S. South Dakota University, Ph.D. University of California

THOMAS L. ROBERTS , Chairman
Professor of Biology, 1965
A.B. Talladega College, M.S. Trinity University, Ph.D. Clark University

BRUCE D. RUSSELL
Assistant Professor of Biology, 1965
B.S. Illinois College, M.S. University of Arkansas

ANTHONY W. THURSTON
Associate Professor of Biology, 1964
A.B. Clark University, M.A.T. Brown University

## CHEMISTRY

ALAN D. COOPER
Assistant Professor of Chemistry, 1970
B.S. Tufts University, A.M., Ph.D. Boston University

ARTHUR C. FERGUSON
Assistant Professor of Chemistry, 1970
A.B. Oberlin College, Ph.D. University of Wisconsin

RONALD M. HARRIS
Assistant Professor of Chemistry, 1970
A.B. University of Pennsylvania, M.A., Ph.D. Harvard University

MELVIN MERKEN , Chairman
Professor of Chemistry, 1958
B.S. Tufts College, M.A. Tufts University, Ed.D. Boston University

ESTELLE C. ZOLL
Associate Professor of Chemistry, 1967
A.B. Boston University, Ph.D. University of Delaware

## COMMUNICATION DISORDERS

RICHARD E. CALLAHAN
Instructor of Speech and Dramatics, 1970
B.A. Montclair State College, M.A. Teachers College, Columbia University

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Assistant Professor of Communication Disorders, 1973
B.A. Newark State College, M.A. University of Wisconsin

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B.A. Salem State College, M.Ed., Ed.D. Boston University

JOHN F. McLAUGHLIN
Assistant Professor of Speech and Dramatics, 1968
B.S. Holy Cross College, Ed.M. Worcester State College

## COMPUTER SCIENCE

MICHAEL MULCAHY
Assistant Professor of Mathematics and Computer Sciences, 1973
B.S., Ed., M.Ed., Worcester State College

WILLIAM SPEZESKI
Director of the Computation Program
B.S. University of Massachusetts - Amherst, M.A. Clark University

## ECONOMICS

KEE IL CHOI
Professor of Economics and Sociology, 1970
B.A. Princeton University, Ph.D. Harvard University

GEORGE T. KELLEY
Associate Professor of Economics and Sociology, 1969
A.B. Holy Cross College, M.A. Boston College. Ph.D. Clark University

STEPHEN F. TRIMBY
Instructor of Economics and Sociology, 1970
A.B. Assumption College, A.M. Clark University

## EARLY CHILDHOOD EDUCATION

JOSEFINA BUNUAN
Associate Professor of Elementary Education, 1969
B.A. University of the Philipines, Ed.M. Boston College, Ed.D. Boston University, Dip. in Ld. Melbourne College, Australia

Sr. JOSEPHINA CONCANNON
Professor of Elementary Education, 1970
B.S. in Ed. Mount St. Joseph's Teachers College, Ed.M., Ed.D. Boston College, LL.D. (Honora Causis) Regis College

MARY-ELLEN MEEGAN
Instructor of Elementary Education, 1971
B.S. Framingham State College, Ed. M. Boston College

JOSEPHINE T. POLITO
Assistant Professor of Elementary Education and Supervisor of Student Teachers, 1972
B.S. Nazareth College, M.S. Syracuse University

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B.S. in Ed., Ed.M. Worcester State College, Ed.D. Boston University

## ELEMENTARY EDUCATION

M. KATHLEEN BURNS
Assistant Professor of Elementary Education and Educational Advisor, 1971
A.B. Radcliffe, M.A. Clark University

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Assistant Professor of Elementary Education and Supervisor of Student Teachers, 1971
B.S., M.S. State University College, Ph.D. University of Texas

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Professor of Elementary Education and Supervisor of Student Teachers, 1958
B.S. Lowell State College, M.A., Ed.D. Boston University

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B.A. Clark University, M.A. University of Massachusetts-Amherst

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NANCY A. JOHNSON
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B.S. Ed., Boston University, M.Ed. Worcester State College, Ed.D. Wayne State University

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B.A. Pembroke College, Ed.M. Rhode Island College, Ph.D. Indiana University

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## SECONDARY EDUCATION

J. WILLIAM BIGONESS
Assistant Professor of Secondary Education and Supervisor of Student Teachers, 1968
A.B. Boston College, Ed.M. Bridgewater State College, M.A. Middlebury College

MICHAEL A. BURKE
Assistant Professor of Secondary Education and Supervisor of Student Teachers, 1969
A.B. Holy Cross College, Ed.M. Worcester State College, M.A.T. Michigan State University

DAVID W. HILTON
Assistant Professor of Secondary Education, 1969
B.S. Salem State College, Ed.M., Ph.D. Boston College

FELIX E. MASTERSON
Assistant Professor of Secondary Education and Supervisor of Student Teachers, 1968
A.B. Assumption College, M.A. Clark University

J. FRANCIS O'MARA
Professor of Secondary Education and Supervisor of Student Teachers, 1965
B.A. Holy Cross College, Ed.M. Hyannis State College, M.A. American International College, Dip. in Prof. Ed., Ph.D. University of Connecticut

CHAD C. OSBORNE
Assistant Professor of Secondary Education and Supervisor of Student Teachers, 1970
B.A. Yale University, M.A. Stanford University

CARL H. PETERSON
Assistant Professor of Secondary Education and Supervisor of Student Teachers, 1969
B.S., Ed.M. Fitchburg State College

DAVID H. QUIST
Assistant Professor of Secondary Education, 1970
A.B., M.A., Ed.D. Clark University

MANUEL ZAX , Chairman
Professor of Secondary Education and Supervisor of Student Teachers, 1968
A.B. Yale University, Ed.M. Keene State College, Ed.D. Cornell University

JOSEPH E. ZEGARRA
Assistant Professor of Secondary Education and Superivsor of Student Teachers, 1971
B.A. Earlham College, M.A., Ed.D. Ball State University

## ENGLISH

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Instructor of Economics and Sociology, 1965
B.S., M.A. Boston College

# 1973 1974 CALENDAR

## FALL SEMESTER

| | | |
|---|---|---|
| SEPTEMBER | 4 | Orientation for New Students 9 a.m. – 3 p.m.<br>Faculty Meeting 9 – 11 a.m.<br>Registration for Seniors 1 – 4:30 p.m. |
| | 5 | Registration for Juniors 8:30 a.m. – Noon<br>Registration for Sophomores 1 – 4:30 p.m. |
| | 6 | Classes Begin 8:30 a.m. |
| OCTOBER | 8 | Columbus Day – Holiday |
| | 22 | Veterans' Day – Holiday |
| NOVEMBER | 2 | Professional Day – No classes |
| | 21 | Thanksgiving Vacation begins at 12:30 p.m. |
| | 26 | Classes resume – 8:30 a.m. |
| DECEMBER | 19-21 | One period exams shall be given or regular classes shall be held<br>EXAMINATION SCHEDULE<br>Dec. 19 – Monday, Wednesday, and Friday classes meeting at 8:30, 10:30, 12:30, 2:30<br>Dec. 20 – Tuesday and Thursday classes meeting any period<br>Dec. 21 – Monday, Wednesday, and Friday classes meeting at 9:30, 11:30, 1:30, 3:30. LAST DAY OF CLASSES |
| DECEMBER 22 to JANUARY 7 | | Holiday Vacation<br>Jan. 2 – All grades due by 5 p.m.<br>Jan. 7 - 11 Department Workshops – Participation by all faculty and student members of Departmental Advisory Committees<br>Jan. 14 - 18 Meeting of All College Council and Standing Committees for review of Committee reports and planning 1974-75 academic year |

## SPRING SEMESTER

| | | |
|---|---|---|
| JANUARY | 21 | Registration for Seniors 8:30 a.m. –Noon<br>Registration for Juniors 1 – 4:30 p.m. |
| | 22 | Registration for Sophomores 9 – 4:30 p.m. |
| | 23 | Registration for Freshmen 9 – 4:30 p.m. |
| | 24 | Classes begin 8:30 a.m. |
| FEBRUARY | 18 | Washington's Birthday – Holiday |
| MARCH | 15 | Vacation begins 5 p.m. |
| | 25 | Classes resume 8:30 a.m. |
| APRIL | 12 | Good Friday – Holiday |
| | 15 | Patroits' Day – Holiday |
| MAY | 20-22 | One period exams shall be given or regular classes shall be held<br>EXAMINATION SCHEDULE<br>May 20 – Monday, Wednesday, and Friday classes meeting at 8:30, 10:30, 12:30, 2:30<br>May 21 – Tuesday and Thursday classes meeting any period<br>May 22 – Monday, Wednesday, and Friday classes meeting at 9:30; 11:30, 1:30, 3:30 LAST DAY OF CLASSES |
| | 27 | Memorial Day – Holiday |
| | 28 | All grades due by 5:00 p.m. |
| JUNE | 2 | Commencement |

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